VI. METHODS OF OBTAINING INTERCONNECTION AND ACCESS TO UNBUNDLED ELEMENTS

542. In this section, we address the means of achieving interconnection and access to unbundled network elements that incumbent LECs are required to make available to requesting carriers.

A. Overview

1. Background

543. Section 251(c)(2) requires incumbent LECs to provide interconnection with the LEC's network "for the facilities and equipment of any requesting telecommunications carrier."[1321] Section 251(c)(6) imposes upon incumbent LECs "the duty to provide . . . for physical collocation of equipment necessary for interconnection or access to unbundled network elements at the premises of the [LEC], except that the carrier may provide for virtual collocation if the [LEC] demonstrates to the State commission that physical collocation is not practical for technical reasons or because of space limitations."[1322] In the NPRM, we noted that section 251(c)(6) does not expressly limit the Commission's authority under section 251(c)(2) to establish rules requiring incumbent LECs to make available a variety of methods of interconnection, except in situations where the incumbent can demonstrate to the state commission that physical collocation is not practical for technical reasons or space limitations. We tentatively concluded that the Commission has the authority to require any reasonable method of interconnection, including physical collocation, virtual collocation, and meet point interconnection arrangements.[1323]

[1321] 47 U.S.C. § 251(c)(2).

[1322] 47 U.S.C. § 251(c)(6).

[1323] NPRM at para. 64. Under the Commission's *Expanded Interconnection* rules, LECs are not required to offer a collocating carrier a choice between physical and virtual collocation. *Special Access Order*, 7 FCC Rcd at 7407; *Switched Transport Order*, 8 FCC Rcd at 7404; *see also Physical Collocation Designation Order*, 8 FCC Rcd 4589 (under our *Expanded Interconnection* rules, LECs must provide virtual collocation where: virtual collocation is available on an intrastate basis; a LEC has negotiated an interstate virtual collocation arrangement; LECs are exempted from providing physical collocation because of space constraints; or a state commission has granted a waiver). Also, *see* Section VI.B.1.b. regarding the definitions of physical and virtual collocation.

2. Comments

544. Many parties agree with our tentative conclusion that we have the authority to require any reasonable method of interconnection.[1324] The Illinois Commission states that the purpose of 251(c)(6) is to eliminate any question about the Commission's authority to require physical collocation, and not to limit the type of interconnection incumbent LECs are required to provide under 251(c)(2).[1325]

545. CAPs and IXCs argue that incumbent LECs should be required to offer competitive entrants the choice between physical and virtual collocation, regardless of whether it is practical to offer physical collocation at a particular LEC premises.[1326] Consumer Federation of America and the Consumers Union argue that the Commission can and should order physical and virtual collocation.[1327] MCI contends that interconnectors have the right to choose virtual or physical collocation, or both, and should have the right to switch from one arrangement to another while paying only the actual costs of such a change.[1328] Sprint argues that the authority to require physical collocation necessarily includes the authority to require less invasive forms of collocation, such as virtual.[1329] Hyperion contends that small carriers lack the financial resources to make the economic investment necessary for physical collocation at every end office. Hyperion suggests that permitting new entrants to request virtual or physical collocation, depending upon their requirements would encourage competition.[1330] ACTA asserts that the cost of converting existing virtual collocation arrangements to physical should be borne by the incumbent LEC.[1331]

[1324] *See, e.g.*, MFS comments at 17-18 (if Congress meant that 251(c)(6) collocation was the exclusive means of obtaining interconnection or access to unbundled elements, then subsections (c)(2) and (c)(3) would not have been required); Teleport comments at 26; Citizens Utilities comments at 11; Illinois Commission comments at 33; Pennsylvania Commission comments at 22; Sprint reply at 21.

[1325] Illinois Commission comments at 33; MFS comments at 18 (no inference can be drawn that Congress intended any limitation on the Commission's authority to require forms of interconnection other than physical collocation, especially in light of section 251(i)).

[1326] *See, e.g.*, AT&T comments at 41; Hyperion comments at 14; MFS comments at 23.

[1327] CFA/CU comments at 14.

[1328] MCI comments at 56.

[1329] Sprint Comments at 19.

[1330] Hyperion comments at 15.

[1331] ACTA comments at 16.

546. Several parties urge the Commission to require interconnection at "meet points."[1332] Teleport states that incumbent LECs currently provide meet point interconnection arrangements between one another's facilities and are thus obligated to provide such arrangements to others.[1333] Teleport also claims that requiring meet point arrangements would be pro-competitive because it would allow competitors the flexibility to construct more efficient networks by eliminating the need to match the incumbent LEC's network.[1334]

547. Incumbent LECs respond that the statute does not give the Commission authority to require virtual collocation in addition to physical collocation.[1335] Ameritech argues that Congress specifically addressed collocation in section 251(c)(6), and that it would be inappropriate to mandate virtual collocation pursuant to the general duty under section 251(c)(2) to provide interconnection. It contends that, under principles of statutory construction, the specific language of section 251(c)(6), which provides for virtual collocation only where physical collocation is not practical, should govern the general language of section 251(c)(2).[1336]

548. GTE claims that section 251(c)(2) does not provide for any Commission role in specifying acceptable forms of interconnection.[1337] Bell Atlantic and BellSouth claim that meet point interconnection arrangements are very complex and should not be mandated by the Commission or the states, but rather left to the negotiation process.[1338] PacTel argues that incumbent LECs should not be required to develop new network capabilities or expand current network facilities to interconnect with competitors.[1339]

[1332] A meet point is a point, designated by two carriers, at which one carrier's responsibility for service begins and the other carrier's responsibility ends.

[1333] Teleport reply at 25; Sprint reply 21-22 (argues for a "mid-span" meet arrangement whereby two carriers' fiber optic cables would be spliced together at a point between two repeaters).

[1334] Teleport reply at 25.

[1335] *See, e.g.,* Bell Atlantic comments at 34; PacTel comments at 36.

[1336] Ameritech comments at 24.

[1337] GTE comments at 22.

[1338] Bell Atlantic comments at 22; BellSouth comments at 23.

[1339] PacTel comments at 19.

3. Discussion

549. We conclude that, under sections 251(c)(2) and 251(c)(3), any requesting carrier may choose any method of technically feasible interconnection or access to unbundled elements at a particular point. Section 251(c)(2) imposes an interconnection duty at any technically feasible point; it does not limit that duty to a specific method of interconnection or access to unbundled elements.

550. Physical and virtual collocation are the only methods of interconnection or access specifically addressed in section 251. Under section 251(c)(6), incumbent LECs are under a duty to provide physical collocation of equipment necessary for interconnection unless the LEC can demonstrate that physical collocation is not practical for technical reasons or because of space limitations. In that event, the incumbent LEC is still obligated to provide virtual collocation of interconnection equipment. Under section 251, the only limitation on an incumbent LEC's duty to provide interconnection or access to unbundled elements at any technically feasible point is addressed in section 251(c)(6) regarding physical collocation. Unless a LEC can establish that the specific technical or space limitations in subsection (c)(6) are met with respect to physical collocation, we conclude that incumbent LECs must provide for any technically feasible method of interconnection or access requested by a competing carrier, including physical collocation.[1340] If, for example, we interpreted section 251(c)(6) to limit the means of interconnection available to requesting carriers to physical and virtual collocation, the requirement in section 251(c)(2) that interconnection be made available "at any technically feasible point" would be narrowed dramatically to mean that interconnection was required only at points where it was technically feasible to collocate equipment. We are not pursuaded that Congress intended to limit interconnection points to locations only where collocation is possible.

551. Section 251(c)(6) provides the Commission with explicit authority to mandate physical collocation as a method of providing interconnection or access to unbundled elements. Such authority was previously found lacking by the U.S. Court of Appeals for the D.C. Circuit in *Bell Atlantic v. FCC*,[1341] which was decided prior to enactment of the 1996 Act. While section 251(c)(6) limits an incumbent LEC's duty to provide physical collocation in certain circumstances, we find that it does not limit our authority to require, under sections 251(c)(2) and (c)(3), the provision of virtual collocation. We note that under our *Expanded Interconnection* rules, that were amended subsequent to the Bell Atlantic decision, competitive entrants using physical collocation were required by many incumbent LECs to convert to virtual collocation. If the Commission concluded that subsection (c)(6) places a

[1340] Because we require incumbent LECs to offer virtual collocation in addition to physical collocation, we reject the suggestion of ACTA that the cost of converting from virtual to physical collocation be borne by the incumbent LEC. *See* ACTA comments at 16.

[1341] *Bell Atlantic Telephone Companies v. FCC*, 24 F.3d 1441 (D.C. Cir. 1994) (Bell Atlantic v. FCC).

limitation on our authority to require virtual collocation, competitive providers would be required to undertake costly and burdensome actions to convert back to physical collocation even if they were satisfied with existing virtual collocation arrangements. We conclude that Congress did not intend to impose such a burden on requesting carriers that wish to continue to use virtual collocation for purposes of section 251(c). Further, the record indicates that this requirement would be costly and would delay competition.[1342] In short, we conclude that, in enacting section 251(c)(6), Congress intended to expand the interconnection choices available to requesting carriers, not to restrict them.

552. We also conclude that requiring incumbent LECs to provide virtual collocation and other technically feasible methods of interconnection or access to unbundled elements is consistent with Congress's desire to facilitate entry into the local telephone market by competitive carriers. In certain circumstances, competitive carriers may find, for example, that virtual collocation is less costly or more efficient than physical collocation. We believe that this may be particularly true for small carriers which lack the the financial resources to physically collocate equipment in a large number of incumbent LEC premises.[1343] Moreover, since requesting carriers will bear the costs of other methods of interconnection or access, this approach will not impose an undue burden on the incumbent LECs.

553. Consistent with this view, other methods of technically feasible interconnection or access to incumbent LEC networks, such as meet point arrangements, in addition to virtual and physical collocation, must be available to new entrants upon request.[1344] Meet point arrangements (or mid-span meets), for example, are commonly used between neighboring LECs for the mutual exchange of traffic, and thus, in general, we believe such arrangements are technically feasible.[1345] Further, although the creation of meet point arrangements may require some build out of facilities by the incumbent LEC, we believe that such arrangements are within the scope of the obligations imposed by sections 251(c)(2) and 251(c)(3). In a meet point arrangement, the "point" of interconnection for purposes of sections

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[1342] *See* Teleport comments at 32; ALTS comments at 23; Time Warner comments at 42-44 (objecting to non-recurring charges for the reconnection of existing interconnected virtual collocation services to a replacement physical collocation arrangement).

[1343] *See* Hyperion comments at 15.

[1344] *See* Teleport comments at 26-30; *see also* Washington Utilities and Transportation Commission, *Fourth Supplemental Order Rejecting Tariff Filings and Ordering Refiling*, Granting Complaints, in Part, (Washington Commission Oct. 31, 1995), Docket No. UT-941464, at 45; *Application of Electric Lightwave, Inc., MFS Intelnet of Oregon, Inc., and MCI Metro Access Transmission Services, Inc.*, Public Utility Commission of Oregon Order, Order No. 96-021, (Oregon Commission Jan. 12, 1996), at 68-69; *Rules for Telecommunications Interconnection and Unbundling*, Arizona Corporation Commission Order, Decision No. 59483, (Arizona Commission Jan. 11, 1996), Proposed Rule R14-2-1303 (Attachment E hereto).

[1345] The Michigan Commission recently required Ameritech to provide meet point interconnection. Michigan Public Service Commission, Case No. U-10860 (Michigan June 5, 1996) at 18 n.4.

251(c)(2) and 251(c)(3) remains on "the local exchange carrier's network"[1346] (*e.g.*, main distribution frame, trunk-side of the switch), and the limited build-out of facilities from that point may then constitute an accommodation of interconnection.[1347] In a meet point arrangement each party pays its portion of the costs to build out the facilities to the meet point. We believe that, although the Commission has authority to require incumbent LECs to provide meet point arrangements upon request, such an arrangement only makes sense for interconnection pursuant to section 251(c)(2) but not for unbundled access under section 251(c)(3). New entrants will request interconnection pursuant to section 251(c)(2) for the purpose of exchanging traffic with incumbent LECs. In this situation, the incumbent and the new entrant are co-carriers and each gains value from the interconnection arrangement. Under these circumstances, it is reasonable to require each party to bear a reasonable portion of the economic costs of the arrangement. In an access arrangement pursuant to section 251(c)(3), however, the interconnection point will be a part of the new entrant's network and will be used to carry traffic from one element in the new entrant's network to another. We conclude that in a section 251(c)(3) access situation, the new entrant should pay all of the economic costs of a meet point arrangement. Regarding the distance from an incumbent LEC's premises that an incumbent should be required to build out facilities for meet point arrangements, we believe that the parties and state commissions are in a better position than the Commission to determine the appropriate distance that would constitute the required reasonable accommodation of interconnection.

554. Finally, in accordance with our interpretation of the term "technically feasible," we conclude that, if a particular method of interconnection is currently employed between two networks, or has been used successfully in the past, a rebuttable presumption is created that such a method is technically feasible for substantially similar network architectures. Moreover, because the obligation of incumbent LECs to provide interconnection or access to unbundled elements by any technically feasible means arises from sections 251(c)(2) and 251(c)(3), we conclude that incumbent LECs bear the burden of demonstrating the technical infeasibility of a particular method of interconnection or access at any individual point.

[1346] 47 U.S.C. § 251(c)(2).

[1347] *See, supra* Section IV.E., above, discussing accommodation of interconnection.

B. Collocation

1. Collocation Standards

a. Adoption of National Standards

(1). Background

555. In the NPRM we tentatively concluded that we should adopt national rules for virtual and physical collocation. This tentative conclusion was based on the belief that national standards would help to speed the development of competition.[1348] We also sought comment on specific national standards that we might adopt, and on whether any specific state approaches would serve as an appropriate model.[1349]

(2). Comments

556. Incumbent LECs and state commissions argue that collocation is a state matter and that terms and conditions for collocation should be negotiated between the parties[1350] or determined by the states.[1351] Some parties recommend that, to the extent national guidelines are necessary, the Commission should readopt the standards established in the *Expanded Interconnection* proceeding.[1352] Teleport and the New York Commission suggest that, if we adopt rules, we should use the New York Commission's "comparably efficient interconnection" standard as a model.[1353] The

[1348] NPRM at para. 24.

[1349] NPRM at para. 70.

[1350] BellSouth comments at 23; SBC comments at 64; USTA comments at 19; PacTel comments at 34.

[1351] *See, e.g.*, New York Commission comments at 13-14; *see also* Ohio Commission comments at 29; Florida Commission comments at 22; Oregon Commission comments at 23.

USTA comments at 19; Bell Atlantic comments at 32-33; Sprint reply at 22; California Commission comments at 24, Texas Commission comments at 13-14; District of Columbia Commission comments at 20.

[1353] Teleport comments at 30 (this standard is consistent with, if not demanded by, the requirements for nondiscriminatory interconnection in section 251(c)(2)(C)); New York Commission comments at 34 (the Commission should not set specific rules, but should adopt guidelines that incumbent LECs offer comparably efficient interconnection).

Alabama and Missouri Commissions support the approach to interconnection that each adopted in their respective states.[1354] Pacific Telesis supports California's "preferred outcomes approach."[1355]

557. Competitive providers generally favor national standards for collocation.[1356] MFS argues that Congress did not intend for the states to have a policy role in collocation matters, and that unambiguous national guidelines are needed to prevent incumbent LECs from engaging in discriminatory practices and to avoid duplicative litigation in multiple forums.[1357]

(3). Discussion

558. We conclude that we should adopt explicit national rules to implement the collocation requirements of the 1996 Act. We find that specific rules defining minimum requirements for nondiscriminatory collocation arrangements will remove barriers to entry by potential competitors and speed the development of competition. Our experience in the *Expanded Interconnection* proceeding indicates that incumbent LECs have an economic incentive to interpret regulatory ambiguities to delay entry by new competitors.[1358] We and the states should therefore adopt, to the extent possible, specific and detailed collocation rules. We find, however, that states should have flexibility to apply additional collocation requirements that are otherwise consistent with the 1996 Act and our implementing regulations.

[1354] Alabama Commission comments at 17 (under Alabama's interconnection model, parties negotiate collocation arrangements and may petition the Alabama commission to require collocation under specific terms and conditions should negotiations fail); Missouri Commission comments at 12 (The Missouri Commission requires the incumbent LEC to provide the type of interconnection that the interconnecting carrier requests, either physical or virtual. The Commission also requires that large incumbent LECs tariff their interconnection arrangements, and that collocators pay a deposit).

[1355] PacTel comments at 36.

[1356] Intermedia comments at 6; Teleport comments at 30; ALTS comments at 21; Hyperion comments at 14; ACSI comments at 14; NCTA comments at 34; Telecommunications Resellers Ass'n comments at 46; Time Warner comments at 32; MFS comments at 20-21; AT&T comments at 39.

[1357] MFS comments at 20-21.

[1358] Our review of the LECs' initial physical and virtual collocation tariffs raised significant concerns regarding the implementation of our *Expanded Interconnection* requirements and resulted in the designation of numerous issues for investigation. The Commission has not yet reached decisions on most of these issues, though it has found that certain rates for virtual collocation were unlawful. *See Local Exchange Carriers' Rates, Terms, and Conditions for Expanded Interconnection Through Virtual Collocation for Special Access and Switched Transport*, 10 FCC Rcd 6375 (Com. Car. Bur. 1995) (*Phase I Report and Order*); *see also Local Exchange Carriers' Rates, Terms, and Conditions for Expanded Interconnection for Special Access*, 8 FCC Rcd 6909 (Com. Car. Bur. 1993) (*Physical Collocation Designation Order*); *Local Exchange Carriers' Rates, Terms, and Conditions for Expanded Interconnection Through* Virtual Collocation for Special Access and Switched Transport, 10 FCC Rcd 11116 (Com. Car. Bur. 1995) (*Virtual Collocation Designation Order*).

b. Adoption of *Expanded Interconnection* Terms and Conditions for Physical and Virtual Collocation under Section 251

(1). Background

559. In our *Expanded Interconnection* proceeding, we required LECs to offer expanded interconnection to all interested parties, which allowed competitors and end users to terminate their own special access and switched transport access transmission facilities at LEC central offices.[1359] We required Tier 1 LECs[1360] to offer physical collocation, with the interconnecting party paying the LEC for central office floor space.[1361] We required that LECs provide space to interested parties on a first-come first-served basis, and that they provide virtual collocation when space for physical collocation is exhausted.[1362] Under virtual collocation, interconnectors are allowed to designate central office transmission equipment dedicated to their use, as well as to monitor and control their circuits terminating in the LEC central office. Interconnectors, however, do not pay for the incumbent's floor space under virtual collocation arrangements and have no right to enter the LEC central office. Under our virtual collocation requirements, LECs must install, maintain, and repair interconnector-designated equipment under the same intervals and with the same or better failure rates for the performance of similar functions for comparable LEC equipment.[1363]

560. In the *Expanded Interconnection* proceeding, we required the LECs to file tariffs to implement our virtual and physical collocation requirements. Our initial review of the LECs' tariffs

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Expanded Interconnection with Local Telephone Company Facilities, First Report and Order, 7 FCC Rcd 7369 (1992) (*Special Access Order*), *vacated in part and remanded, Bell Atlantic*, 24 F.3d 1441 (1994); *First Reconsideration*, 8 FCC Rcd 127 (1993); *vacated in part and remanded, Bell Atlantic*, 24 F.3d 1441; *Second Reconsideration*, 8 FCC Rcd 7341 (1993); *Second Report and Order*, 8 FCC Rcd 7374 (1993) (*Switched Transport Order*), *vacated in part and remanded, Bell Atlantic Telephone Cos., v. FCC*, 24 F.3d 1441; *Remand Order*, 9 FCC Rcd 5154 (1994) (*Virtual Collocation Order*), *remanded for consideration of 1996 Act, Pacific Bell, et al. v. FCC*, 81 F.3d 1147 (1996) (collectively referred to as *Expanded Interconnection*). Interstate access is a service traditionally provided by local telephone companies and enables IXCs and other customers to originate and terminate interstate telephone traffic. Special access is a form of interstate access that uses dedicated transmission lines between two points, without switching the traffic on those lines. Switched transport is another form of interstate access comprising the transmission of traffic between interexchange carriers' (or other customers') points of presence and local telephone companies' end offices, where the traffic is switched and routed to end users.

[1360] Tier 1 LECs are local exchange carriers having $100 million or more in "total company annual regulated revenues." *Commission Requirements for Cost Support Material to be Filed with 1990 Annual Access Tariffs*, 5 FCC Rcd 1364, 1364 (Com. Car. Bur. 1990) (*1990 Cost Support Order*).

[1361] The interconnecting party uses the space to locate equipment necessary to terminate its transmission links for interconnection with the LEC's network. The interconnector has physical access to this space in the LEC central office to install, maintain, and repair its transmission equipment. *Special Access Order*, 7 FCC Rcd at 7391.

[1362] 7 FCC Rcd at 7391.

[1363] *Special Access Order*, 7 FCC Rcd at 7394; *Switched Transport Order*, 8 FCC Rcd at 7393.

raised significant concerns regarding the LECs' provision of physical and virtual collocation.[1364] Consequently, the Bureau partially suspended the rates proposed by many of the LECs and allowed these rates to take effect subject to investigation and an accounting order.

561. In 1994, the U.S. Court of Appeals for the District of Columbia Circuit found that the FCC lacked the authority under section 201 of the 1934 Communications Act to require physical collocation and remanded all other issues to the Commission.[1365] On remand, we adopted rules for both special access and switched transport that required LECs to provide either virtual or physical collocation, at the LECs' option.[1366] Those rules currently are in place, although the court of appeals remanded the *Remand Order* to us to consider the impact of the 1996 Act on those rules.[1367] In the 1996 Act, Congress specifically directed incumbent LECs to provide physical collocation for interconnection and access to unbundled network elements, absent technical or space constraints, pursuant to section 251(c)(6) of the Communications Act.[1368]

562. We sought comment in the NPRM on whether, for purposes of implementing physical and virtual collocation under section 251, we should readopt the standards set out in our *Expanded Interconnection* proceeding and, if so, how to adapt those standards to reflect the new statutory requirements and other policy considerations of the 1996 Act.[1369]

(2). Comments

563. To the extent parties addressed the substantive content of national rules, most favor readoption of the *Expanded Interconnection* rules. Assuming that national standards are to be adopted, several state commissions and a number of incumbent LECs generally favor readoption of our *Expanded Interconnection* requirements because they were developed based on an extensive

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[1364] *See Special Access Physical Collocation Designation Order*, 8 FCC Rcd 6909; *Virtual Collocation Designation Order*, 10 FCC Rcd 11116; *see also supra*, note 1358.

[1365] *Bell Atlantic v. FCC*, 24 F.3d 1441.

[1366] *Remand Order*, 9 FCC Rcd 5154.

[1367] *Pacific Bell et al. v. FCC*, 81 F.3d 1147 (D.C. Cir. 1996). As discussed in Section VI.B.2.a, below, we find that the 1996 Act does not supplant or otherwise alter our *Expanded Interconnection* rules for interstate interconnection services provided pursuant to section 201 of the Communications Act.

[1368] 47 U.S.C. § 251(c)(6).

[1369] NPRM at para. 71.

record.[1370] BellSouth, in contrast, argues that the Commission's *Expanded Interconnection* rules are no longer necessary under the 1996 Act, because parties should be free to negotiate agreements between themselves without being governed by FCC rules.[1371] SBC and Pacific Telesis argue that physical collocation should be negotiated in order to allow parties to address unique requirements.[1372] Cincinnati Bell argues that the FCC should not establish regulations regarding services that are ancillary to collocation such as rent, insurance, and equipment maintenance, because they are not activities within the purview of Title II of the Communications Act.[1373]

564. CAPs and IXCs also generally favor readoption of our *Expanded Interconnection* requirements.[1374] Several commenters advocate specific amendments that they believe are required by the 1996 Act or by intervening circumstances.[1375] MFS, however, argues that the purposes of the 1996 Act are much broader than those of the *Expanded Interconnection* proceedings and that the collocation standards under section 251 should reflect this difference.[1376] MCI contends that existing collocation rules, terms, and conditions should be significantly modified.[1377] Teleport asserts that the Commission should require all incumbent LECs to refile with the FCC their most recent physical collocation tariffs, subject to the previously applicable accounting orders.[1378]

(3). Discussion

[1370] Bell Atlantic comments at 33; Cincinnati Bell comments at 15; PacTel comments at 35; NYNEX comments at 66; Roseville Tel. comments at 2-3; SNET comments at 15; GTE comments at 24 (*Expanded Interconnection* rules should be readopted if used to identify acceptable outcomes and not to dictate behavior); *see also* Alabama Commission comments at 17; Texas Commission comments at 14; Illinois Commission comments at 35.

[1371] BellSouth comments at 24 (the Act sets up a new framework under which the parties must be free to negotiate arrangements "unencumbered by excessive rules and regulations").

[1372] PacTel reply at 12; SBC comments at 64 (collocation should be negotiated and should not be subject to uniform requirements because of the differing conditions at each location).

[1373] Cincinnati Bell comments at 15.

[1374] *See, e.g.*, Sprint comments at 21; Time Warner comments at 38; Intermedia comments at 6.

[1375] ALTS comments at 24; Telecommunications Resellers Ass'n comments at 47; Intermedia comments at 9 (incumbent LECs must tariff cross-connect elements for services not currently offered, such as packet switching, frame relay, ATM, and SONET services); ACSI comments at 16 (revised *Expanded Interconnection* rules should reflect resolution of issues raised in designation orders).

[1376] MFS comments at 22; *see also* MCI comments at 54.

[1377] MCI comments at 58.

[1378] Teleport comments at 31; Intermedia comments at 7 (arguing that LECs must establish terms and conditions for physical collocation within 30 days).

565. We conclude that we should adopt the existing *Expanded Interconnection* requirements, with some modifications, as the rules applicable for collocation under section 251.[1379] Those rules were established on the basis of an extensive record in the *Expanded Interconnection* proceeding, and are largely consistent with the requirements of section 251(c)(6). Adoption of those requirements for purposes of collocation under section 251, moreover, has substantial support in the record of this proceeding. Thus, the standards established for physical and virtual collocation in our *Expanded Interconnection* proceeding will generally apply to collocation under section 251. The most significant requirements of *Expanded Interconnection* are specifically set out in rules we adopt here. We address pricing and rate structure issues separately, in section VII below.

566. We find, however, that certain modifications to our *Expanded Interconnection* requirements are necessary to account for specific provisions of section 251(c)(6) and service arrangements that differ from those contemplated in our *Expanded Interconnection* orders.[1380] For example, the *Expanded Interconnection* requirements apply to Tier 1 LECs that are not NECA pool members, and section 251 applies to "incumbent LECs," though there is an exemption for certain rural carriers.[1381] *Expanded Interconnection* also allows end-users to interconnect their equipment, while section 251 requires that interconnection and access to unbundled network elements be provided to "any requesting telecommunications carrier."[1382] Accordingly, we set forth below several modifications to the terms and conditions for collocation as they are described in our *Expanded Interconnection* orders for application in implementing section 251. We believe that, in light of the expedited statutory time frame for this rulemaking and limited record addressing the specific terms and conditions for collocation under section 251 in this proceeding, it would be impractical and imprudent to develop a large number of new substantive collocation requirements in this order. We may consider the need for additional or different requirements in a subsequent proceeding, if we determine that such action is warranted.

567. The most significant difference between the *Expanded Interconnection* rules and the collocation rules we adopt to implement the 1996 Act concerns the collocation tariffing requirement. As discussed below, the 1996 Act does not require that collocation be federally tariffed.[1383] We thus do not adopt, under section 251, the *Expanded Interconnection* tariffing requirements originally

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[1379] *See Remand Order*, 9 FCC Rcd at 5168-69, 5174-83.

[1380] *See supra*, note 1358, 1359.

[1381] *See infra*, Section XII.

[1382] *See* 47 U.S.C. § 251(c)(2), (3).

[1383] *See infra*, Section VI.B.2.a.

adopted under section 201 for physical and virtual collocation. The existing tariffing requirements of *Expanded Interconnection* for interstate special access and switched transport will continue to apply for use by customers that wish to subscribe to those interstate services.[1384]

568. We reject SBC's contention that we may not adopt any terms and conditions in this proceeding that differ from those in the *Expanded Interconnection* proceeding. SBC argues that Congress intended, in section 251(c)(6), to use the term "physical collocation" as a term of art, and thereby to adopt wholesale the terms and conditions for physical collocation that the Commission adopted in the *Expanded Interconnection* proceeding. A variety of terms and conditions for physical collocation are possible and section 251(c)(6) makes no reference to the Commission's decisions on these issues in the *Expanded Interconnection* proceeding. If Congress had intended to readopt those rules wholesale without permitting the Commission any flexibility in the matter, we believe that Congress would have been more explicit rather than merely using the phrase "physical collocation." Thus, we believe that we can and should modify our preexisting standards, as set forth below, for purposes of implementing the provisions of section 251(c)(6). In the following sections (c. - i.) we address comments filed by interested parties concerning application of our existing *Expanded Interconnection* requirements for purposes of collocation under section 251.[1385]

569. Finally, our experience reviewing the tariffs that incumbent LECs filed to implement our requirements for physical and virtual collocation suggests that rates, terms, and conditions under which incumbent LECs propose to provide these arrangements pursuant to section 251(c)(6) bear close scrutiny.[1386] We strongly urge state commissions to be vigilant in their review of such arrangements.[1387] We will review this issue and revise our requirements as necessary.

c. The Meaning of the Term "Premises"

(1). Background

570. In the *Expanded Interconnection* proceeding, we required collocation at end offices, serving wire centers, and tandem switches, as well as at remote distribution nodes and any other points

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[1384] *See infra,* Section VI.B.2.a.

[1385] In a number of instances, we decline to adopt proposals for modifications to our *Expanded Interconnection* requirements.

[1386] *See Special Access Physical Collocation Designation Order*, 8 FCC Rcd 6909; *Virtual Collocation Designation Order*, 10 FCC Rcd 11116.

[1387] Some areas our investigations have found problematic in the past include channel assignment, letters of agency, charges for repeaters, and placement of point-of-termination bays.

that the LEC treats as a "rating point."[1388] Section 251(c)(6) requires physical collocation "at the premises of the local exchange carrier."[1389] In the NPRM, we tentatively concluded that the term "premises" includes, in addition to LEC central offices and tandem offices, all buildings or similar structures owned or leased by the incumbent LEC that house LEC network facilities. We sought comment on whether structures that house LEC network facilities on public rights-of-way, such as vaults containing loop concentrators or similar structures, should be deemed to be LEC "premises."[1390]

(2). Comments

571. Incumbent LECs generally argue that collocation is infeasible at locations other than central offices, tandem switching locations, and remote nodes, and that only such locations should be included in the interpretation of the word "premises."[1391] Pacific Telesis argues that points for collocation cannot be determined until the Commission determines the points of interconnection and access to unbundled network elements.[1392] Ameritech contends that we should define the term "premises" as only those portions of central office buildings in which the LEC has the exclusive right of occupancy and in which the technically feasible point of interconnection or access to unbundled elements is located.[1393] The Rural Tel. Coalition asks that interconnection and collocation points be established in a flexible manner to recognize size and volume differences among carriers.[1394]

572. CAPs and IXCs generally favor an expansive definition of the term "premises" that includes "structures housing LEC network facilities on public rights-of-way including vaults containing loop concentrators or similar structures."[1395] These commenters argue that physical collocation should be offered at any incumbent LEC location where physical collocation is technically feasible, including

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[1388] *See Remand Order*,9 FCC Rcd at 5168;*Special Access Order*, 7 FCC Rcd at 7418;*Switched Transport Order*, 8 FCC Rcd at 7409. A rating point is a point used in calculating the length of interoffice special access links.

[1389] 47 U.S.C. § 251(c)(6).

[1390] NPRM at para. 72.

[1391] *See, e.g.*, USTA comments at 20; NYNEX comments at 66; Cincinnati Bell comments at 15; Ameritech comments at 22 (the term "premises" should only include central offices housing network facilities in which the incumbent LEC has the exclusive right of occupancy).

[1392] Bell Atlantic comments at 37.

[1393] Ameritech comments at 22.

[1394] Rural Tel. Coalition comments at 31.

[1395] *See, e.g.*, AT&T comments at 40;*see also* Telecommunications Resellers Ass'n comments at 46; Hyperion comments at 14.

central offices, cable vaults, manholes, cross-connect points, loop carrier, and building closets.[1396] ALTS and MFS contend that assertions of technical infeasibility should be addressed in fact-specific situations and should not narrow the general application of section 251(c)(6).[1397] The Illinois Commission supports our tentative conclusion and argues that collocation should not be restricted to central and tandem offices.[1398]

(3). Discussion

573. The 1996 Act does not address the definition of premises, nor is the term discussed in the legislative history. Therefore, we look to the purposes of the 1996 Act and general uses of the term "premises" in other contexts in order to define this term for purposes of section 251(c)(6). The term "premises" is defined in varying ways, according to the context in which it is used.[1399] In light of the 1996 Act's procompetitive purposes, we find that a broad definition of the term "premises" is appropriate in order to permit new entrants to collocate at a broad range of points under the incumbent LEC's control. A broad definition will allow collocation at points other than those specified for collocation under the existing *Expanded Interconnection* requirements. We find that this result is appropriate because the purposes of physical and virtual collocation under section 251 are broader than those established in the *Expanded Interconnection* proceeding. We therefore interpret the term "premises" broadly to include LEC central offices, serving wire centers and tandem offices, as well as all buildings or similar structures owned or leased by the incumbent LEC that house LEC network facilities. We also treat as incumbent LEC premises any structures that house LEC network facilities on public rights-of-way, such as vaults containing loop concentrators or similar structures.

574. As discussed below, we conclude that section 251(c)(6) requires collocation only where technically feasible. In light of this conclusion, we find that adoption of a definition of "premises" that depends on whether interconnection or access to unbundled network elements at a particular point is "technically feasible," as suggested by Ameritech and Pacific Telesis, would be superfluous. We also conclude that it is not appropriate to adopt a definition of "premises," as suggested by several parties, that is dependent on whether it is "practical" to collocate equipment at a particular point. We note however, that neither physical nor virtual collocation is required at points where not technically

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[1396] *See, e.g.*, MFS comments at 23.

[1397] ALTS reply at 35; MFS reply at 29.

[1398] Illinois Commerce Commission at 33.

[1399] *See Gibbons v. Brandt*,170 F.2d 385, 387 (7th Cir. 1948) ("the word 'premises' does not have one fixed and absolute meaning. It is to be determined always by its context . . .").

feasible.[1400] We therefore decline to adopt specific requirements regarding collocation at particular points in the LEC network, as suggested by GVNW and others. Because collocation is only required where technically feasible, the approach we here adopt will enable competitors to take advantage of opportunities to collocate equipment without imposing undue burdens on incumbent LECs, whether large or small.

575. We also address the impact on small incumbent LECs. For example, the Rural Tel. Coalition asks that interconnection and collocation points be established in a flexible manner. We have considered the economic impact of our rules in this section on small incumbent LECs. For example, we do not adopt rigid requirements for locations where collocation must be provided. Incumbent LECs are not required to physically collocate equipment in locations where not practical for technical reasons or because of space limitations, and virtual collocation is required only where technically feasible. We also note, however, that section 251(f) of the 1996 Act provides relief to certain small LECs from our regulations implementing section 251.[1401]

d. Collocation Equipment

(1). Background

576. In the *Expanded Interconnection* proceeding, we allowed collocation for central office equipment needed to terminate basic transmission facilities between LEC central offices and third-party premises. Acceptable equipment included optical terminating equipment and multiplexers. We did not require the LECs to permit collocation of enhanced services equipment or customer premises equipment because such equipment was not necessary to foster competition in the provision of basic transmission services. We also did not require LECs to allow the collocation of switches.[1402] Section 251(c)(6) requires incumbent LECs to allow collocation of "equipment necessary for interconnection or access to unbundled elements . . . ."[1403] We sought comment in the NPRM on what types of equipment competitors should be permitted to collocate on LEC premises.[1404]

[1400] Incumbent LECs are required to permit the collocation of equipment for the purpose of interconnection under section 251(c)(2) or access to unbundled network elements under section 251(c)(3). Interconnection and access to unbundled network elements are only required under these sections at technically feasible points. 47 U.S.C. § 251(c)(2) and (3).

[1401] *See infra*, Section XII.

[1402] *See generally Remand Order*, 9 FCC Rcd at 5178-81 (paras. 82-94); *see also Special Access Order*, 7 FCC Rcd at 7412-16, *Switched Transport Order*, 8 FCC Rcd at 7411-16.

[1403] 47 U.S.C. § 251(c)(6).

[1404] NPRM at para.72.

(2). Comments

577. BOCs and other incumbent LECs generally favor limiting the type of equipment allowed to be collocated to transmission equipment necessary to interconnect to LEC networks.[1405] Sprint argues that incumbent LECs should be permitted to limit the amount of space they have to provide to that needed for equipment necessary for the particular type of interconnection that is taking place.[1406] IXCs and CAPs argue that any type of equipment may be collocated absent demonstrable harm to the LEC, and that any arbitrary limit on the types of equipment to be collocated could foreclose efficient methods of interconnection and/or access to unbundled elements.[1407] MFS contends that competing providers should not be required to demonstrate affirmatively that equipment is "necessary" before allowing it to be collocated. The Illinois Commission supports a policy that would not restrict the type of equipment to be collocated except where necessary to prevent harm to the network. The Colorado Commission supports limiting allowable equipment to that used to provide a telecommunications service.[1408] The Association of Telemessaging Services International urges the Commission to require collocation of equipment used to provide enhanced services.[1409]

578. WinStar argues that the 1996 Act establishes its right to place its microwave facilities on the roofs of incumbent LEC buildings in which its termination equipment is to be collocated in order to ensure that wireline facilities are not favored over wireless, and therefore urges the Commission to adopt a collocation standard that is technology neutral.[1410]

(3). Discussion

579. We believe that section 251(c)(6) generally requires that incumbent LECs permit the collocation of equipment used for interconnection or access to unbundled network elements. Although the term "necessary," read most strictly, could be interpreted to mean "indispensable," we conclude that for the purposes of section 251(c)(6) "necessary" does not mean "indispensable" but rather "used" or "useful." This interpretation is most likely to promote fair competition consistent with the purposes of

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[1405] *See, e.g.*, SBC comments at 63-64; Bell Atlantic comments at 34; GTE reply at 14; PacTel comments at 38, reply at 13.

[1406] Sprint reply at 23.

[1407] *See, e.g.*, MFS comments at 24; MCI comments at 54-55; Time Warner comments at 39; GCI comments at 10.

[1408] Illinois Commission comments at 34; Colorado Commission comments at 23.

[1409] Association of Telemessaging Services International reply at 16.

[1410] WinStar comments at 4, reply at 4.

the Act. (We note that this view is consistent with the findings of the Colorado Commission).[1411] Thus, we read section 251(c)(6) to refer to equipment used for the purpose of interconnection or access to unbundled network elements.[1412] Even if the collocator could use other equipment to perform a similar function, the specified equipment may still be "necessary" for interconnection or access to unbundled network elements under section 251(c)(6). We can easily imagine circumstances, for instance, in which alternative equipment would perform the same function, but with less efficiency or at greater cost. A strict reading of the term "necessary" in these circumstances could allow LECs to avoid collocating the equipment of the interconnectors' choosing, thus undermining the procompetitive purposes of the 1996 Act.

580. Consistent with this interpretation, we conclude that transmission equipment, such as optical terminating equipment and multiplexers, may be collocated on LEC premises. We also conclude that LECs should continue to permit collocation of any type of equipment currently being collocated to terminate basic transmission facilities under the *Expanded Interconnection* requirements. In addition, whenever a telecommunications carrier seeks to collocate equipment for purposes within the scope of section 251(c)(6), the incumbent LEC shall prove to the state commission that such equipment is not "necessary," as we have defined that term, for interconnection or access to unbundled network elements. State commissions may designate specific additional types of equipment that may be collocated pursuant to section 251(c)(6).

581. We do not find, however, that section 251(c)(6) requires collocation of equipment used to provide enhanced services, contrary to the arguments of the Association of Telemessaging Services International.[1413] We also decline to require incumbent LECs to allow collocation of any equipment without restriction.[1414] Section 251(c)(6) requires collocation only of equipment "necessary for interconnection or access to unbundled elements." Section 251(c)(2) requires incumbent LECs to provide "interconnection" for the "transmission and routing of telephone exchange service and exchange access," and section 251(c)(3) requires incumbent LECs to provide access to unbundled network

[1411] Colorado Public Utilities Commission, *Proposed Rules Regarding Implementation of §§ 40-15-101* et. seq., *Requirements Relating to Interconnection and Unbundling*, Docket No. 95R-556T, (Colorado Commission, March 29, 1996) at 19-20.

[1412] *Cf. National Railroad Passenger Corporation v. Boston and Maine Corp.*, 503 U.S. 407, 417 (1992) (upholding the ICC's interpretation of the word "required" as "useful or appropriate," rather than "indispensable"); *McCulloch v. Maryland*, 4 Wheat. 316, 413 (1819) (Chief Justice Marshall read the word "necessary" to mean "convenient, or useful," rejecting a stricter reading of the term).

[1413] ATSI reply at 16.

[1414] *See, e.g.*, MFS comments at 24.

elements "for the provision of a telecommunications service."[1415] Section 251(c)(6) therefore requires incumbent LECs to provide physical or virtual collocation only for equipment "necessary" or used for those purposes. We find that section 251(c)(6) does not require collocation of equipment necessary to provide enhanced services.[1416] At this time, we do not impose a general requirement that switching equipment be collocated since it does not appear that it is used for the actual interconnection or access to unbundled network elements.[1417] We recognize, however, that modern technology has tended to blur the line between switching equipment and multiplexing equipment, which we permit to be collocated. We expect, in situations where the functionality of a particular piece of equipment is in dispute, that state commissions will determine whether the equipment at issue is actually used for interconnection or access to unbundled elements. We also reserve the right to reexamine this issue at a later date if it appears that such action would further achievement of the 1996 Act's procompetitive goals. Finally, because we lack an adequate record on the issue, we decline to adopt AT&T's proposal that we require that incumbent LECs allow collocated equipment to be used for "hubbing."[1418]

582. In response to WinStar's suggestion that we require collocation of microwave transmission facilities, we note that collocation of microwave transmission equipment was required where reasonably feasible by the *Special Access Order*.[1419] We also require the collocation of microwave equipment under section 251, although we modify the *Expanded Interconnection* standard we adopt under section 251 for when such collocation is required slightly to conform to the standard for the provision of physical collocation in section 251(c)(6). We therefore require that incumbent LECs allow competitors to use physical collocation for microwave transmission facilities except where this is

[1415] 47 U.S.C. § 251(c)(3).

[1416] We note that we declined to require collocation of enhanced services equipment in our *Computer III* and *ONA* proceedings. *See Third Computer Inquiry*, Report and Order, 104 FCC 2d 958, 1037-38 (1986); *Computer III Remand*, 6 FCC Rcd 7571 (1991). Enhanced services are defined as services that "employ computer processing applications which act on the format, content, code, protocol or similar aspects of the subscriber's transmitted information; provide the subscriber additional, different, or restructured information; or involve subscriber interaction with stored information." 47 C.F.R. § 64.702. This definition appears not to include the provision of "telecommunications services." *See* 47 U.S.C. § 153(43), (46).

[1417] If switching equipment is located at the collocated space, generally the only equipment used for interconnection or access to unbundled elements is the cross-connect equipment. The switching equipment generally performs other functions.

[1418] AT&T advocates requiring LECs to allow new entrants to "connect additional equipment of their own to their collocated equipment in the collocated space." Letter from Betsy Brady, Federal Government Affairs Director and Attorney, to Robert McDonald, Common Carrier Bureau, July 12, 1996, at 3, n.2 (AT&T July 12, 1996 *Ex Parte*). *See also* AT&T comments at 40 n. 51.

[1419] *Special Access Order*, 7 FCC Rcd at 7416; *see also Remand Order*, 9 FCC Rcd at 5178-79.

not practical for technical reasons or because of space limitations, in which case virtual collocation is required where technically feasible.[1420]

e. Allocation of Space

(1). Background

583. In the *Expanded Interconnection* proceeding, we required LECs to allocate space for physical collocation on a first-come, first-served basis. We also required LECs to take into account interconnector demand for collocation space when reconfiguring space or building new central offices, and we found that imposing reasonable restrictions on warehousing of space by collocating carriers was appropriate.[1421] The NPRM sought comment on whether national guidelines would deter anticompetitive behavior through the manipulation or unreasonable allocation of space by either incumbent LECs or new entrants.[1422]

(2). Comments

584. CAPs and IXCs support adoption of rules governing incumbent LEC space allocation. AT&T asserts that incumbent LECs should be required to consider the needs of collocators when remodeling or building new facilities.[1423] MFS and Teleport contend that incumbent LECs should not be able to limit the amount of space that may be occupied by an interconnector's equipment unless the incumbent LEC demonstrates that space is nearing exhaustion.[1424] MCI asserts that we should prohibit an incumbent LEC from denying a collocator use of available space unless the incumbent demonstrates that it had plans for such space prior to the request for collocation.[1425] In locations where space is scarce, MCI argues that incumbent LECs should be required to file reports with the FCC on the status

[1420] Under our technical feasibility standard, the costs of any construction necessary to accommodate the proposed interconnection arrangement are to be borne by the party seeking to interconnect. *See supra*, Section IV.E.

[1421] *Special Access Order*, 7 FCC Rcd at 7408.

[1422] NPRM at para.72.

[1423] AT&T comments at 41-42 (where space is unavailable incumbent LECs should be required to provide trunking at no extra cost and enable the interconnector to connect to designated equipment elsewhere, with a timetable for moving the interconnector to the incumbent LEC's premises when space becomes available).

[1424] MFS comments at 34; Teleport comments at 33.

[1425] MCI comments at 56.

and planned increase and use of space.[1426] Bell Atlantic counters that such a policy could prevent it from serving its customers efficiently.[1427] Pacific Telesis suggests that the Commission reiterate its policy of allowing "reasonable restrictions on warehousing of unused space by interconnectors."[1428] The Pennsylvania Commission asserts that it is not necessary for the FCC to adopt national guidelines regarding space allocation.[1429] GVNW argues that collocation should be required in rural areas only where there is space available.[1430]

(3). Discussion

585. We believe that incumbent LECs have the incentive and capability to impede competitive entry by minimizing the amount of space that is available for collocation by competitors. Accordingly, we adopt our *Expanded Interconnection* space allocation rules for purposes of section 251, except as indicated herein. LECs will thus be required to make space available to requesting carriers on a first-come, first-served basis. We also conclude that collocators seeking to expand their collocated space should be allowed to use contiguous space where available. We further conclude that LECs should not be required to lease or construct additional space to provide physical collocation to interconnectors when existing space has been exhausted. We find such a requirement unnecessary because section 251(c)(6) allows incumbent LECs to provide virtual collocation where physical collocation is not practical for technical reasons or because of space limitations. Consistent with the requirements and findings of the *Expanded Interconnection* proceeding, we conclude that incumbent LECs should be required to take collocator demand into account when renovating existing facilities and constructing or leasing new facilities, just as they consider demand for other services when undertaking such projects. We find that this requirement is necessary in order to ensure that sufficient collocation space will be available in the future. We decline, however, to adopt a general rule requiring LECs to file reports on the status and planned increase and use of space. State commissions will determine whether sufficient space is available for physical collocation, and we conclude that they have authority under the 1996 Act to require incumbent LECs to file such reports. We expect individual state commissions to determine whether the filing of such reports is warranted.

[1426] MCI comments at 56.

[1427] Bell Atlantic reply at 16.

[1428] PacTel comments at 36.

[1429] Pennsylvania Commission comments at 22.

[1430] GVNW comments at 8.

586. We also agree with Pacific Telesis that restrictions on warehousing of space by interconnectors are appropriate.[1431] Because collocation space on incumbent LEC premises may be limited, inefficient use of space by one competitive entrant could deprive another entrant of the opportunity to collocate facilities or expand existing space. In the *Expanded Interconnection* proceeding, we allowed "reasonable restrictions on warehousing of space,"[1432] and will adopt this provision for purposes of section 251. As discussed below, we also adopt measures to ensure that incumbent LECs themselves do not unreasonably "warehouse" space, although we do permit them to reserve a limited amount of space for specific future uses.[1433] Incumbent LECs, however, are not permitted to set maximum space limitations without demonstrating that space constraints make such restrictions necessary, as such maximum limits could constrain a collocator's ability to provide service efficiently.

587. We also address the impact on small incumbent LECs. For example, GVNW argues that we should require collocation in rural areas only where there is space available. We have considered the impact of our rules in this section on small incumbent LECs and do not require physical collocation at any point where there is insufficient space available. We decline, however, to adopt rules regarding space availability that apply differently to small, rural carriers because the rules we here adopt are sufficiently flexible. We also note, however, that section 251(f) of the 1996 Act provides relief to certain small LECs from our regulations implementing section 251.[1434]

f. Leasing Transport Facilities

(1). Background

588. Our *Expanded Interconnection* rules require LECs to provide collocation for the purpose of allowing collocators to terminate their own transmission facilities for special access or switched transport service.[1435] We did not require that collocation be made available for other purposes, for example, when the interconnecting party wished only to connect incumbent LEC transmission facilities to collocated equipment. We sought comment in the NPRM on whether we should modify the standards of the *Expanded Interconnection* proceeding in light of the new statutory

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[1431] PacTel comments at 36.

[1432] *Special Access Order,* 7 FCC Rcd at 7408;*see also Remand Order,*9 FCC Rcd at 187-88

[1433] *See infra,* Section VI.B.1.i.

[1434] *See infra,* Section XII.

[1435] *See Remand Order,* 9 FCC Rcd at 5180-81, 5183;*Special Access Order,*7 FCC Rcd at 7403;*Switched Transport Order,* 8 FCC Rcd at 7402.

requirements and disputes that have arisen in the investigations regarding the incumbent LECs' physical and virtual collocation tariffs.[1436]

(2). Comments

589. MCI and others argue that collocators should not be prohibited from leasing transport facilities from the incumbent LEC to connect equipment in the collocated space to any other point in the incumbent LEC's network.[1437] Pacific Telesis contends that LECs should not be required to permit collocation of equipment that will be connected to a LEC's transmission facilities because such a policy would result in exhaustion of central office space and is outside the purposes of the 1996 Act.[1438] Bell Atlantic argues that permitting such interconnection is not advisable, because it would allow resellers to obtain lower-priced interconnection and access to unbundled elements without providing any facilities of their own.[1439]

(3). Discussion

590. Although in *Expanded Interconnection* the Commission required that interested parties interconnect collocated equipment with their own transmission facilities,[1440] we conclude that it would be inconsistent with the provisions of the 1996 Act to adopt that requirement under section 251. Rather, we conclude that a competitive entrant should not be required to bring transmission facilities to LEC premises in which it seeks to collocate facilities. Entrants should instead be permitted to collocate and connect equipment to unbundled network transmission elements obtained from the incumbent LEC. The purpose of the *Expanded Interconnection* requirement was to foster competition in the market for interstate switched and special access transmission facilities.[1441] The purposes of section 251 are broader. Section 251(c)(3) requires that competitive entrants be given access to unbundled elements and that they be permitted to combine such elements.[1442] Prohibiting competitors from connecting

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[1436] NPRM at para. 73.

[1437] MCI comments at 55; ACTA comments at 16; Telecommunications Resellers Ass'n comments at 47.

[1438] PacTel comments at 39, reply at 14.

[1439] Bell Atlantic reply at 16.

[1440] *Special Access Order*, 7 FCC Rcd at 7403; *Switched Transport Order*, 8 FCC Rcd at 7402.

[1441] *See Special Access Order*, 7 FCC Rcd at 7372; *Switched Transport Order*, 8 FCC Rcd at 7377.

[1442] 47 U.S.C. 251(c)(3).

unbundled network elements to their collocated equipment would appear contrary to the provisions of section 251(c)(3).

591. Finally, we find that Bell Atlantic's opposition to this requirement is without merit. Bell Atlantic argues that collocators should be required to provide their own transmission facilities because otherwise new entrants could compete without providing any of their own facilities. Section 251(c)(3) specifically states that unbundled elements are to be provided in a manner that allows requesting carriers to combine elements in order to provide telecommunications service. As stated above, requiring collocators to supply their own transmission facilities would amount to a prohibition on connecting unbundled transmission facilities to other unbundled elements connected to equipment in the collocation space. Although such interconnection arrangements were not required by our *Expanded Interconnection* requirements, we conclude that they are required by section 251 when collocated equipment is used to achieve interconnection or access to unbundled network elements.

g. Co-Carrier Cross-Connect

(1). Background

592. In the most common collocation configuration under existing requirements, the designated physical collocation space of several competitive entrants is located close together within the LEC premises. Since carriers connect to the collocation space via high-capacity lines, different competitive entrants seeking to interconnect with each other may find connecting between their respective collocation spaces on the LEC premises the most efficient means of interconnecting with each other. We sought comment in the NPRM on whether we should adopt any requirements in addition to those adopted in the *Expanded Interconnection* proceeding in order to fulfill the mandate of the 1996 Act.[1443]

(2). Comments

593. Several CAPs and IXCs argue that we should adopt as an additional requirement that interconnectors be allowed to connect directly to other collocators located at the collocation space.[1444] Incumbent LECs generally object to such a configuration on the basis that such access is not expressly required by the statute and that we therefore lack authority to impose such a requirement.[1445]

[1443] NPRM at para. 73.

[1444] *See, e.g.*, MCI comments at 55; MFS comments at 24; GGI comments at 10; Telecommunications Resellers Ass'n comments at 47; Intermedia comments at 9.

[1445] *See, e.g.*, GTE reply at 15; Bell Atlantic reply at 15; PacTel reply at 14; Sprint reply at 23.

(3). Discussion

594. We believe that it serves the public interest and is consistent with the policy goals of section 251 to require that incumbents permit two or more collocators to interconnect their networks at the incumbent's premises. Parties opposed to this proposal have offered no legitimate objection to such interconnection. Allowing incumbent LECs to prohibit collocating carriers from interconnecting their collocated equipment would require them to interconnect collocated facilities by routing transmission facilities outside of the LECs' premises. We find that such a policy would needlessly burden collocating carriers. To the extent equipment is collocated for the purposes expressly permitted under section 251(c)(6), the statute does not bar us from requiring that incumbent LECs allow connection of such equipment to other collocating carriers located nearby. We find that requiring LECs to allow such interconnection of collocated equipment will foster competition by promoting efficient operation. It is also unlikely to have a significant effect on space availability. We find authority for such a requirement in section 251(c)(6), which requires that collocation be provided on "terms and conditions that are just, reasonable, and nondiscriminatory" and in section 4(i), which permits the Commission to "perform any and all acts, make such rules and regulations, and issue such orders, not inconsistent with this Act, as may be necessary in the execution of its functions."[1446] We therefore will require that incumbent LECs allow collocating telecommunications carriers to connect collocated equipment to such equipment of other carriers within the same LEC premises so long as the collocated equipment is used for interconnection with the incumbent LEC or access to the LEC's unbundled network elements.

595. We clarify that we here require incumbent LECs to provide the connection between the equipment in the collocated spaces of two or more collocating telecommunications carriers unless they permit the collocating parties to provide this connection for themselves. We do not require incumbent LECs to allow placement of connecting transmission facilities owned by competitors within the incumbent LEC premises anywhere outside of the actual physical collocation space.

h. Security Arrangements

(1). Background

596. Under our *Expanded Interconnection* requirements, incumbent LECs typically require that physically collocated equipment be placed inside a collocation cage within the incumbent LEC facility. Such cages are intended to separate physically the competitors' facilities from those of the incumbent and to prevent access by unauthorized personnel to any parties' equipment. Such cages frequently add considerably to the cost of establishing physical collocation at a particular LEC premises and could constitute a barrier to entry in certain circumstances.

[1446] 47 U.S.C. § 154(i).

(2). Comments

597. Teleport argues that cage construction is one of the most expensive items associated with physical collocation and that we should modify our *Expanded Interconnection* requirements to allow new entrants to subcontract construction of their physical collocation security arrangements with contractors approved by the incumbent LEC.[1447] ALTS and MCI argue that security measures should only be provided at the request of the entrant and at the cost the entrant would have incurred if it performed the construction itself.[1448] GVNW argues that incumbent LECs need to ensure that a competitor's personnel do not cause breaches of security and therefore should be subject to minimum proficiency requirements.[1449]

(3). Discussion

598. Based on the comments in this proceeding and our previous experience with physical collocation in the *Expanded Interconnection* docket, we will continue to permit LECs to require reasonable security arrangements to separate an entrant's collocation space from the incumbent LEC's facilities. The physical security arrangements around the collocation space protect both the LEC's and competitor's equipment from interference by unauthorized parties. We reject the suggestion of ALTS and MCI that security measures be provided only at the request of the entrant since LECs have legitimate security concerns about having competitors' personnel on their premises as well. We conclude that the physical separation provided by the collocation cage adequately addresses these concerns. At the same time, we recognize that the construction costs of physical security arrangements could serve as a significant barrier to entry, particularly for smaller competitors. We also conclude that LECs have both an incentive and the capability to impose higher construction costs than the new entrant might need to incur. We therefore conclude that collocating parties should have the right to subcontract the construction of the physical collocation arrangements with contractors approved by the incumbent LEC. Incumbent LECs shall not unreasonably withhold such approval of contractors. Approval by incumbent LECs of such contractors should be based on the same criteria as such LECs use for approving contractors for their own purposes. We decline, however, to require that competitive entrants' personnel be subject to minimum training and proficiency requirements as suggested by GVNW. We find that such concerns are better resolved through negotiation and arbitration.

Teleport comments at 32.

[1448] ALTS comments at 23; MCI comments at 58;*contra* PacTel reply at 15.

[1449] GVNW comments at 10;*accord* Rural Tel. Coalition comments at 31.

i. Allowing Virtual Collocation in Lieu of Physical

(1). Background

599. Section 251(c)(6) requires that incumbent LECs provide physical collocation unless the carrier "demonstrates to the state commission that physical collocation is not practical for technical reasons or because of space limitations . . . ."[1450] In the NPRM, we sought comment on whether the Commission should establish guidelines for states to apply when determining whether physical collocation is not practical for "technical reasons or because of space limitations."[1451]

(2). Comments

600. Pacific Telesis argues that national standards to determine whether physical collocation is not practical at a specific LEC location are unnecessary. It further argues that "reduced reliability or other harm to the network" should be considered a technical reason that justifies refusal to allow physical collocation.[1452] IXCs and CAPs assert that the burden of showing that physical collocation is not practical should fall on the incumbent LEC.[1453] AT&T contends that an incumbent LEC should be required to show that there is no practical way of providing additional space before it is relieved of its obligation to provide physical collocation. If physical collocation is genuinely not practical, then AT&T argues that the incumbent should provide trunking at no cost to allow the entrant to interconnect.[1454] Time Warner asserts that, where physical collocation is not possible in a LEC central office, LECs should supply a substitute at cost.[1455] State commissions that comment on this issue generally oppose strict national rules and argue that, to the extent such rules are adopted, they should allow the states maximum flexibility.[1456]

[1450] 47 U.S.C.§ 251(c)(6).

[1451] NPRM para. 72.

[1452] PacTel comments at 39.

[1453] *See, e.g.*, Hyperion comments at 14; ACSI comments at 16; AT&T comments at 41.

[1454] AT&T comments at 41-42.

[1455] Time Warner comments at 36, 40.

[1456] *See, e.g.*, Texas Commission comments at 14; Pennsylvania Commission comments at 22; Oregon Commission comments at 23.

601. Time Warner also asserts that the FCC should require LECs to offer a $1 sale and repurchase option for virtually collocated equipment.[1457] The Independent Cable and Telecommunications Association argues that incumbent LECs should be required to provide virtual collocation that is equal in all functional aspects to physical collocation in order to avoid prejudicing small entities that may not have sufficient market share to justify a physical collocation arrangement.[1458]

(3). Discussion

602. Section 251(c)(6) clearly contemplates the provision of virtual collocation when physical collocation is not practical for technical reasons or because of space limitations.[1459] Section 251(c)(6) requires the incumbent LEC to demonstrate to the state commission's satisfaction that there are space limitations on the LEC premises or that technical considerations make collocation impractical. Because the space limitations and technical practicality issues will vary considerably depending on the location at which competitor equipment is to be collocated, we find that these issues are best handled on a case-by-case basis, as they were under our *Expanded Interconnection* requirements.[1460] In light of our experience in the *Expanded Interconnection* proceeding, we require that incumbent LECs provide the state commission with detailed floor plans or diagrams of any premises where the incumbent alleges that there are space constraints. Submission of floor plans will enable state commissions to evaluate whether a refusal to allow physical collocation on the grounds of space constraints is justified. We also find that the approach detailed by AT&T in its July 12 *Ex Parte* submission to be useful and believe that state commissions may find it a valuable guide.[1461]

603. Although section 251(c)(6) provides that incumbent LECs are not required to provide physical collocation where impractical for technical reasons or because of space limitations, our experience in the *Expanded Interconnection* proceeding has not demonstrated that technical reasons, apart from those related to space availability, are a significant impediment to physical collocation. We therefore decline to adopt any rules for determining when physical collocation should be deemed impractical for technical reasons.

[1457] Time Warner comments at 38.

[1458] ICTA reply at 13.

[1459] 47 U.S.C § 251(c)(6).

[1460] *See Special Access Order*, 7 FCC Rcd 7407.

[1461] AT&T describes a detailed proposed showing that would be required of an incumbent LEC that claims physical collocation is not practical because of space exhaustion. The proposed showing would require the specific identification of the space on incumbent LEC premises that is used for various purposes, as well as specific plans for rearrangement/expansion and identification of steps taken to avoid exhaustion. AT&T July 12, 1996 *Ex Parte*.

604. Incumbent LECs are allowed to retain a limited amount of floor space for defined future uses. Allowing competitive entrants to claim space that incumbent LECs had specifically planned to use could prevent incumbent LECs from serving their customers effectively.[1462] Incumbent LECs may not, however, reserve space for future use on terms more favorable than those that apply to other telecommunications carriers seeking to hold collocation space for their own future use.[1463]

605. We decline to adopt AT&T's suggestion that incumbent LECs should be required to lease additional space or provide trunking at no cost where they have insufficient space for physical collocation.[1464] In light of the availability of substitute virtual collocation arrangements, we find that requiring the type of "substitute" for physical collocation as advocated by AT&T is unnecessary. We similarly reject Time Warner's suggestion that incumbent LECs supply a "substitute" for physical collocation at cost, except to the extent we require virtual collocation. On the other hand, we will require incumbent LECs with limited space availability to take into account the demands of interconnectors when planning renovations and leasing or constructing new premises, as we have in the *Expanded Interconnection* proceeding.[1465]

606. Incumbent LECs are not required to provide collocation at locations where it is not technically feasible to provide virtual collocation. Although space constraints are a concern normally associated with physical collocation, given our broad reading of the term "premises,"[1466] we find that space constraints could preclude virtual collocation at certain LEC premises as well. State commissions will decide whether virtual collocation is technically feasible at a given point. We do, however, require that incumbent LECs relinquish any space held for future use before denying virtual collocation due to a lack of space unless the incumbent can prove to a state commission that virtual collocation at that point is not technically feasible. Moreover, when virtual collocation is not feasible, we require that incumbent LECs provide other forms of interconnection and access to unbundled network elements to the extent technically feasible.[1467]

[1462] *Special Access Order*,7 FCC Rcd at 7409.

[1463] *See supra*, Section VI.B.1.e

[1464] *See* AT&T comments at 41-42.

[1465] *See Special Access Order*,7 FCC Rcd at 7408.

[1466] *See supra*, Section VI.B.1.c

[1467] *See supra*, Section VI.A.

607. Finally, we decline to require that incumbent LECs provide virtual collocation that is equal in all functional aspects to physical collocation. Our *Expanded Interconnection* rules required a variety of standards for the virtual collocation and have been largely successful. In addition, Congress was aware of the differences between virtual and physical collocation when it adopted section 251(c)(6), and this section does not specify any requirements for virtual collocation.[1468] As discussed above, we adopt the *Expanded Interconnection* requirements for virtual collocation under section 251.[1469] We find, however, that a standard simply requiring equality in all functional aspects could be difficult to administrate and could lead to substantial disputes. We also decline to adopt the suggestion that we require LECs to offer virtual collocation under the "$1 sale and repurchase option."[1470] We do not find evidence that such a specific requirement is necessary at this time. We reserve the right to revisit these issues in the future, however, if we perceive that smaller entities would be disadvantaged by our existing standards.

2. Legal Issues

a. Relationship between *Expanded Interconnection* Tariffs and Section 251

(1). Background

608. The enactment of sections 251 and 252 raises the question of whether, and to what extent, the interconnection, access to unbundled network element, and collocation requirements set forth in those sections, and the delegation of specific rate-setting authority to the states under section 252(d)(1), as a matter of law supplant our section 201 *Expanded Interconnection* requirements. We tentatively concluded in the NPRM that our existing *Expanded Interconnection* policies for interstate special access and switched transport should continue to apply.[1471]

(2). Comments

609. Although commenting parties have not addressed this question directly, some commenters appear to assume that LECs will be required to continue to tariff their collocation offerings with the

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[1468] *See Remand Order, 9 FCC Rcd* at 5166-69.

[1469] *See supra*, Section VI.B.1.a

[1470] This configuration is described as involving "the acquisition by the interconnectors of the equipment to be dedicated for interconnectors' use on the LEC premises and the sale of that equipment to the LECs for a nominal $1 sum while maintaining a repurchase option." Time Warner comments at 42.

[1471] NPRM at para. 73.

FCC, as currently required under *Expanded Interconnection*.[1472] Other parties appear to assume that requirements to file federal tariffs are inconsistent with, and superseded by, the negotiation and arbitration provisions in section 252.

(3). Discussion

610. Our *Expanded Interconnection* rules require the largest incumbent LECs to file tariffs with the Commission to offer collocation to parties that wish to terminate interstate special access and switched transport transmission facilities. Section 252 of the 1996 Act, on the other hand, provides for interconnection arrangements rather than tariffs, for review and approval of such agreements by state commissions rather than the FCC, and for public filing of such agreements. Section 252 procedures, however, apply only to "request[s] for interconnection, services, or network elements *pursuant to section 251*."[1473] Such procedures do not, by their terms, apply to requests for service under section 201. Moreover, section 251(i) expressly provides that "[n]othing in this section shall be construed to limit or otherwise affect the Commission's authority under section 201,"[1474] which provided the statutory basis for our *Expanded Interconnection* rules. Thus, we find that the 1996 Act, as a matter of law, does not displace our *Expanded Interconnection* requirements, and, in fact, grants discretion to the FCC to preserve our existing rules and tariffing requirements to the extent they are consistent with the Communications Act.

611. We further conclude that it would make little sense to find that sections 251 and 252 supersede our *Expanded Interconnection* rules, because the two sets of requirements are not coextensive. For example, our *Expanded Interconnection* rules encompass collocation for interstate purposes for all parties, including non-carrier end users, that seek to terminate transmission facilities at LEC central offices.[1475] In comparison, section 251 requires collocation only for "any requesting telecommunications carrier."[1476] Certain competing carriers -- and non-carrier customers not covered by section 251 -- may prefer to take interstate expanded interconnection service under general interstate tariff schedules. We find that it would be unnecessarily disruptive to eliminate that possibility at this time. We also conclude that permitting requesting carriers to seek interconnection pursuant to our *Expanded Interconnection* rules as well as section 251 is consistent with the goals of the 1996

[1472] *See, e.g.*, MFS comments at 32; MCI comments at 58.

[1473] 47 U.S.C § 252(a)(1) (emphasis added).

[1474] Section 201 authorizes the Commission "to establish physical connections with other carriers . . ." 47 U.S.C. § 201.

[1475] *Special Access Order*, 7 FCC Rcd at 7403.

[1476] *See* 47 U.S.C. § 251(c)(2) and (3).

Act to permit competitive entry through a variety of entry strategies. Thus, a requesting carrier would have the choice of negotiating an interconnection agreement pursuant to sections 251 and 252 or of taking tariffed interstate service under our *Expanded Interconnection* rules.

612. Finally, we expect that, over time, sections 251 and 252 and our implementing rules may replace our *Expanded Interconnection* rules as the primary regulations governing interconnection for carriers. We note that section 251 is broader than our *Expanded Interconnection* requirements in certain respects. For example, section 251 requires incumbent LECs to offer collocation for purposes of accessing unbundled network elements, whereas our *Expanded Interconnection* rules require collocation only for the provision of interstate special access and switched transport.[1477] In addition, section 251(c)(6) requires incumbents to offer physical collocation subject to certain exceptions, whereas our existing *Expanded Interconnection* rules only require carriers to offer virtual collocation, although they may choose to offer physical collocation under Title II regulation in lieu of virtual collocation. In the future, we may review the need for a separate set of *Expanded Interconnection* requirements and revise our requirements if necessary. We believe that this approach is consistent with Congress' determination that the need for federal regulations will likely decrease as the provisions of the 1996 Act take effect and competition develops in the local exchange and exchange access markets.[1478]

b. Takings Issues

(1). Background

613. In *Bell Atlantic v. FCC*, the U.S. Court of Appeals for the D.C. Circuit found that the Commission lacked authority under the Communications Act to impose physical collocation on the LECs. The court found that this requirement implicated the Fifth Amendment takings clause.[1479] On remand, the Commission required LECs to provide virtual collocation. In *Pacific Bell v. FCC*,[1480] several LECs challenged the Commission's virtual collocation rules on essentially identical grounds, claiming that the virtual collocation rules also constituted an unauthorized taking. The court did not reach the merits of these claims. Instead, addressing the scope of section 251 immediately following enactment and before the FCC had yet exercised its interpretive authority with respect to the provision,

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[1477] *See Special Access Order*,7 FCC Rcd 7369;*Switched Transport Order*,8 FCC Rcd 7372.

[1478] *See, e.g.*, 47 U.S.C. § 161 (requiring the Commission to "review all regulations . . . in effect at the time of the review that apply to the operations or activities of any provider of telecommunications service.").

[1479] *See Bell Atlanticv. FCC*, 24 F.3d 1441 (D.C. Cir. 1994).

[1480] 81 F.3d 1147 (D.C. Cir. 1996).

the court stated that regulations enacted to implement the 1996 Act would render moot questions regarding the future effect of the virtual collocation order under review. The court did not vacate the order, but remanded to the Commission the issues presented in that case.[1481]

(2). Comments

614. U S West and BellSouth argue that virtual collocation is a taking and that the Commission lacks authority under section 201 to require virtual collocation under its *Expanded Interconnection* rules.[1482] U S West also argues that the Commission lacks authority to require virtual collocation under section 251.[1483] Some incumbent LECs and the Florida Commission also argue that physical collocation amounts to a taking in violation of the Fifth Amendment.[1484] In opposition, several competitive carriers argue that rates that recover incremental costs of collocation will satisfy constitutional "just compensation concerns."[1485]

(3). Discussion

615. We conclude that the ruling in *Bell Atlantic* does not preclude the rules we are adopting in this proceeding. The court in *Bell Atlantic* did not hold that an agency may never "take" property; the court acknowledged that, as a constitutional matter, takings are unlawful only if they are not accompanied by "just compensation."[1486] Instead, the court simply said that the Communications Act of 1934 should not be construed to permit the FCC to take LEC property without *express* authorization. Because the court concluded that mandatory physical collocation would likely constitute a taking,[1487] and that section 201 of the Act did not expressly authorize physical collocation, the court

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[1481] *Id.*

[1482] U S West comments at 29-30; BellSouth comments at 25.

[1483] U S West comments at 30.

[1484] ALLTEL comments at 9; GTE comments at 66-68; US West comments at 29-31; Florida Commission comments at 15 (readoption of old physical collocation rules would be invalidated as a taking but should be readopted as model rules for the states to adopt if they chose).

[1485] MFS reply at 23; ACSI reply at 8-9; GST reply 14; ALTS reply at 8-11.

[1486] *Bell Atlantic*, 24 F.3d at 1445.

[1487] The Commission maintains the position that mandatory physical collocation should not properly be seen to create a takings issue. *See Remand Order*, 9 FCC Rcd at 5169.

held that the Commission was without authority under section 201 to impose physical collocation requirements on LECs.[1488]

616. The question of statutory authority to impose (physical or virtual) collocation obligations on incumbent LECs largely evaporates in the context of the 1996 Act. New section 251(c)(6) *expressly* requires incumbent LECs to provide physical collocation, absent space or technical limitations. Where such limitations exist, the statute *expressly* requires virtual collocation. Thus, under the court's analysis in *Bell Atlantic*, there is no warrant for a narrowing construction of section 251 that would deny us the authority to require either form of collocation. Moreover, for the reasons stated in the *Virtual Collocation Order*,[1489] we continue to believe that virtual collocation, as we have defined it, is not a taking, and that our authority to order such collocation (under either section 251 or section 201) is not subject to the strict construction canon announced in *Bell Atlantic*.

617. Given that we now have express statutory authority to order physical and virtual collocation pursuant to section 251, any remaining takings-related issue necessarily is limited to the question of just compensation. As discussed in Section VII.B.2.a.(3).(c), below, we find that the ratemaking methodology we are adopting to implement the collocation obligations under section 251(c) is consistent with congressional intent and fully satisfies the just compensation standard. There is, therefore, no merit to the LECs' Fifth Amendment-based claims.

[1488] *See Bell Atlantic*, 24 F.3d at 1447 ("we hold that the Act does not expressly authorize an order of physical co-location and thus the Commission may not impose it.").

[1489] *See* 9 FCC Rcd at 5161-66.

VII. PRICING OF INTERCONNECTION AND UNBUNDLED ELEMENTS

A. Overview

618. The prices of interconnection and unbundled elements, along with prices of resale and transport and termination, are critical terms and conditions of any interconnection agreement. If carriers can agree on such prices voluntarily without government intervention, these agreements will be submitted directly to the states for approval under section 252. To the extent that the carriers, in voluntary negotiations, cannot determine the prices, state commissions will have to set those prices. The price levels set by state commissions will determine whether the 1996 Act is implemented in a manner that is *pro-competitor* and favors one party (whether favoring incumbents or entrants) or, as we believe Congress intended, *pro-competition*. As discussed more fully in Section II.D. above, it is therefore critical to implementing Congress's pro-competitive, de-regulatory national policy framework to establish among the states a common, pro-competition understanding of the pricing standards for interconnection and unbundled elements, resale, and transport and termination. While such a common interpretation might eventually emerge through judicial review of state arbitration decisions, we believe that such a process could delay competition for years and require carriers to incur substantial legal costs.[1490] We therefore conclude that, to expedite the development of fair and efficient competition, we must set forth rules now establishing this common, pro-competition understanding of the 1996 Act's pricing standards. Accordingly, the rules we adopt today set forth the methodological principles for states to use in setting prices. This section addresses interconnection and unbundled elements, and subsequent sections address resale and transport and termination, respectively.

619. While every state should, to the maximum extent feasible, immediately apply the pricing methodology for interconnection and unbundled elements that we set forth below, we recognize that not every state will have the resources to implement this pricing methodology immediately in the arbitrations that will need to be decided this fall. Therefore, so that competition is not impaired in the interim, we establish default proxies that a state commission shall use to resolve arbitrations in the period before it applies the pricing methodology. In most cases, these default proxies for unbundled elements and interconnection are ceilings, and states may select lower prices. In one instance, the default proxy we establish is a price range. Once a state sets prices according to an economic cost study conducted pursuant to the cost-based pricing methodology we outline, the defaults cease to apply. In setting a rate pursuant to the cost-based pricing methodology, and especially when setting a rate above a default proxy ceiling or outside the default proxy range, the state must give full and fair effect to the economic costing methodology we set forth in this Order and must create a factual record, including the cost study, sufficient for purposes of review after notice and opportunity for the affected parties to participate.

[1490] For a discussion of our legal authority to adopt national pricing rules, *see supra*, Section II.D.

620. In the following sections, we first set forth generally, based on the current record, a cost-based pricing methodology based on forward-looking economic costs, which we conclude is the approach for setting prices that best furthers the goals of the 1996 Act. In dynamic competitive markets, firms take action based not on embedded costs, but on the relationship between market-determined prices and forward-looking economic costs. If market prices exceed forward-looking economic costs, new competitors will enter the market. If their forward-looking economic costs exceed market prices, new competitors will not enter the market and existing competitors may decide to leave. Prices for unbundled elements under section 251 must be based on cost under the law, and that should be read as requiring that prices be based on forward-looking economic costs. New entrants should make their decisions whether to purchase unbundled elements or to build their own facilities based on the relative economic costs of these options. By contrast, because the cost of building an element is based on forward-looking economic costs, new entrants' investment decisions would be distorted if the price of unbundled elements were based on embedded costs. In arbitrations of interconnection arrangements, or in rulemakings the results of which will be applied in arbitrations, states must set prices for interconnection and unbundled network elements based on the forward-looking, long-run, incremental cost methodology we describe below. Using this methodology, states may not set prices lower than the forward-looking incremental costs directly attributable to provision of a given element. They may set prices to permit recovery of a reasonable share of forward-looking joint and common costs of network elements.[1491] In the aftermath of the arbitrations and relying on the state experience, we will continue to review this costing methodology, and issue additional guidance as necessary.

621. We reject various arguments raised by parties regarding the recovery of costs other than forward-looking economic costs in section 251(c)(2) and (c)(3) prices, including the possible recovery of: (1) embedded or accounting costs in excess of economic costs; (2) incumbent LECs' opportunity costs; (3) universal service subsidies; and (4) access charges. As discussed in Section VII.B.2.a. below, certain portions of access charges may continue to be collected for an interim period in addition to section 251(c)(3) prices.

622. With respect to prices developed under the forward-looking, cost-based pricing methodology, we conclude that incumbent LECs' rates for interconnection and unbundled elements must recover costs in a manner that reflects the way they are incurred. We adopt certain rules that states must follow in setting rates in arbitrations. These rules are designed to ensure the efficient cost-based rates required by the 1996 Act.

[1491] We define these and other forward-looking cost concepts *infra*, Section VII.B.2.a. We define what we consider to be a reasonable share of forward-looking joint and common costs *infra*, Section VII.B.2.a.

623. In the next section of the Order, we establish default proxies that states may elect to use prior to utilizing an economic study and developing prices using the cost-based pricing methodology. We recognize that certain states may find it difficult to apply an economic costing methodology within the statutory time frame for arbitrating interconnection disputes. We therefore set forth default proxies that will be relatively easy to apply on an interim basis to interconnection arrangements. We discuss with respect to particular unbundled elements the reasonable rate structure for those elements and the particular default proxies we are establishing for use pending our adoption of a generic forward-looking cost model. Finally, we discuss the following additional matters: generic forward-looking costing models that we intend to examine further by the first quarter of 1997 in order to determine whether any of those models, with modifications, could serve as better default proxies; the future adjustment of rates; the relationship of unbundled element prices to retail prices; and the meaning of the statutory prohibition against discrimination in sections 251 and 252.

624. Those states that have already established methodologies for setting interconnection and unbundled rates must review those methodologies against the rules we are adopting in this Order. To the extent a state's methodology is consistent with the approach we set forth herein, the state may apply that methodology in any section 252 arbitration. However, if a state's methodology is not consistent with the rules we adopt today, the state must modify its approach. We invite any state uncertain about whether its approach complies with this Order to seek a declaratory ruling from the Commission.

B. Cost-Based Pricing Methodology

625. As discussed more fully in Section II.D. above, although the states have the crucial role of setting specific rates in arbitrations, the Commission must establish a set of national pricing principles in order to implement Congress's national policy framework. For the reasons set forth in the preceding section and as more fully explained below, we are adopting a cost-based methodology for states to follow in setting interconnection and unbundled element rates. In setting forth the cost-based pricing methodology for interconnection and access to unbundled elements, there are three basic sets of questions that must be addressed. First, does the 1996 Act require that the same standard apply to the pricing of interconnection provided pursuant to section 251(c)(2), and unbundled elements provided pursuant to section 251(c)(3)? Second, what is the appropriate methodology for establishing the price levels for interconnection and for each unbundled element, how should costs be defined, and is the price based on economic costs, embedded costs, or other costs? Third, what are the appropriate rate structures to be used to set prices designed to recover costs, including a reasonable profit? We address each of these questions in the following sections.

1. Application of the Statutory Pricing Standard

a. Background

626. In the NPRM, we proposed that any pricing principles we adopt should be the same for interconnection and unbundled network elements because sections 251(c)(2) and (c)(3) and 252(d)(1) use the same pricing standard.[1492] We invited parties to comment on this issue and to justify any proposed distinction in the priority for interconnection and unbundled network elements. We also stated our belief that the same pricing rules that apply to interconnection and unbundled network elements should also apply to collocation under section 251(c)(6) of the 1996 Act.

b. Comments

627. Commenters generally agree that any pricing rules adopted by the Commission for interconnection and unbundled elements should be the same.[1493] These parties assert that any pricing rules the Commission ultimately adopts should not, therefore, create incentives to substitute or arbitrage one type of classification for another. Commenters also generally agree that the pricing rules the Commission adopts for interconnection and unbundled elements should also apply to collocation.[1494] Many of these parties agree that collocation is a subset of the interconnection arrangements contemplated by sections 251(c)(2) and 252(d)(1).[1495] On the other hand, a few parties contend that the pricing standards contained in section 252(d)(1) for interconnection and unbundled elements do not apply to collocation provided under section 251(c)(6).[1496] BellSouth argues that the Commission should not adopt any national standards for virtual collocation.[1497] Other commenters, including some that oppose the establishment of pricing rules by the Commission, argue that, to the extent that the

[1492] NPRM at para. 122.

[1493] *See, e.g.*, Citizens Utilities comments at 16 n.14; Ohio Commission comments at 42; Teleport comments at 46.

[1494] *E.g.*, ACSI comments at 16; ALTS comments at 34-35; Citizens Utilities comments at 16 n.14; Colorado Commission comments at 34; MCI comments at 54, 61; MFS comments at 30; NEXTLINK comments at 26; PacTel comments at 63; Sprint comments at 42; Teleport comments at 46.

[1495] *See, e.g.*, Citizens Utilities comments at 16 n.14; Colorado Commission comments at 34; MFS comments at 30; NEXTLINK comments at 26.

[1496] *See, e.g.*, SNET comments at 24 n.44.

[1497] BellSouth comments at 23.

Commission adopts national standards for collocation, they should generally follow those established in the Commission's *Expanded Interconnection* proceeding in CC Docket No. 91-141.[1498]

c. Discussion

628. Sections 251(c)(2) and (c)(3) impose an identical duty on incumbent LECs to provide interconnection and access to network elements "on rates, terms, and conditions that are just, reasonable, and nondiscriminatory."[1499] In addition, both interconnection and unbundled network elements are made subject to the same pricing standard in section 252(d)(1). Based on the plain language of sections 251(c)(2), (c)(3), and section 252(d)(1), we conclude that Congress intended to apply the same pricing rules to interconnection and unbundled network elements. The pricing rules we adopt shall, therefore, apply to both.

629. We further conclude that, because section 251(c)(6) requires that incumbent LECs provide physical collocation on "rates, terms, and conditions that are just, reasonable, and nondiscriminatory," which is identical to the standard for interconnection and unbundled elements in sections 251(c)(2) and (c)(3), collocation should be subject to the same pricing rules.[1500] We also note that, because collocation is a method of obtaining interconnection and access to unbundled network elements, collocation is properly treated under the same pricing rules. This legal conclusion that there should be a single set of pricing rules for interconnection, unbundled network elements, and collocation provides greater consistency and guidance to the industry, regulators, and the courts. Moreover, it reduces the regulatory burdens on state commissions of developing and applying different pricing rules for collocation, interconnection, and unbundled network elements. We note that our adoption of this single set of pricing rules should minimize regulatory burdens, conflicts, and uncertainties associated with multiple, and possibly inconsistent rules, thus facilitating competition on a reasonable and efficient basis minimizing the economic impact of our rules for all parties, including small entities and small incumbent LECs.[1501]

[1498] *See, e.g.*, Bell Atlantic comments at 32-34.

[1499] 47 U.S.C. § 251(c)(2), (c)(3).

[1500] *See supra*, Section VI.B.

[1501] *See* Regulatory Flexibility Act, 5 U.S.C. §§ 601 *et seq.*

2. Rate Levels

a. Pricing Based on Economic Cost

(1) Background

630. We observed in the NPRM that economists generally agree that prices based on forward-looking long-run incremental costs (LRIC) give appropriate signals to producers and consumers and ensure efficient entry and utilization of the telecommunications infrastructure.[1502] We noted, however, that there was a lack of general agreement on the specifics of methodology for deriving prices based on LRIC or total service long-run incremental cost (TSLRIC). We invited parties to comment on whether we should require the states to employ a LRIC-based pricing methodology and to explain with specificity the costing methodology they support.[1503] We recognized, however, that prices based on LRIC might not permit recovery of forward-looking costs if there were significant forward-looking joint and common costs among network elements.[1504] We sought comment on how, if rates are set above incremental cost, to deal with the problems inherent in allocating common costs and any other overheads.[1505] We observed that, by defining the unbundled elements at a sufficiently aggregated level, it may be possible to reduce the costs to be allocated as joint and common by identifying a substantial portion of costs as incremental to a particular element. To the extent that joint and common costs cannot be entirely eliminated, we sought comment on various methodologies for assigning them, including the use of a fixed allocator or on the basis of inverse demand elasticity. We also sought comment on whether, regardless of the method of allocating common costs, we should limit rates to levels that do not exceed stand-alone costs.[1506] Finally, we invited parties to comment on whether a LRIC-based methodology would establish a price for interconnection and unbundled network elements that includes a reasonable profit and thus complies with section 252(d)(1).[1507]

[1502] NPRM at para. 124.

[1503] *Id*. at para. 126.

[1504] *Id*. at para. 129.

[1505] *Id*. at para. 130.

[1506] *Id*. For a definition of stand-alone costs, *see* Section VII.B.2.a.*infra.*

[1507] 47 U.S.C. § 252(d)(1)(A)(i); NPRM at para. 129.

631. A number of states already employ, or have plans to utilize, some form of LRIC or TSLRIC methodology in their approach to setting prices for unbundled network elements,[1508] with several states choosing LRIC or TSLRIC as a price floor.[1509] For instance, the Connecticut Commission adopted a TSLRIC methodology to measure the cost of service of SNET, its principal incumbent LEC.[1510] Arizona also requires incumbent LECs to conduct TSLRIC cost studies to establish the underlying cost of unbundled services and facilities.[1511] The Ohio Commission has adopted Long Run Service Incremental Cost ("LRSIC"), which is closely related to TSLRIC.[1512] The Missouri and Wyoming Commissions are among a number of state commissions that have not yet adopted a pricing methodology, but are considering LRIC or TSLRIC.[1513] Oklahoma law provides for submission of LRIC cost studies and studies identifying a contribution to common costs for interconnection of facilities and access to network elements to the Oklahoma Commission during an arbitration.[1514] A number of states have yet to choose a pricing methodology. For instance, the New

[1508] *See, e.g.*, California Commission comments at 29 (California has adopted TSLRIC as the standard for developing the costs of unbundled elements and in a rulemaking this summer will determine the unbundled network elements and what level of shared and common costs should be included in the price of each); Michigan Commission comments at 13 (1996 prices for loops to remain at levels established by the Michigan Commission in its original interconnection order or at TSLRIC); Texas Commission comments at 22 (Texas Commission has employed LRIC-based pricing methodologies for many years; SWBT and GTE required to file LRIC cost studies to be used in pricing not later than November 1, 1996).

[1509] *See, e.g.*, Colorado Commission comments at Attachment (Rules Prescribing Principles for Costing and Pricing of Regulated Services of Telecommunications Service Providers) 4 CCR 723-30, Rules 4-5; Hawaii Administrative Rules, Sections 6-80-32-34 (setting out a three-tiered pricing regime with TSLRIC set as floor for pricing of competitive services); Louisiana Commission comments at Attachment (Louisiana Public Service Commission "Regulations for Competition in the Local Telecommunications Market"), p.30; Washington Commission comments at 25, Appendix B (*Washington Utilities and Transportation Commission v. U S West Communications*, Docket No. UT-950200 at 82 (Washington Commission, April 11, 1996)); Wisconsin Stat. Ann. section 196.204 (requiring the price of each network service or function to exceed TSLRIC).

[1510] Connecticut Commission comments at 4.

[1511] Arizona Commission comments, Exhibit V (Arizona Administrative Code R14-2-1101 *et seq.*), p.10.

[1512] *See* Ohio Commission comments at 43-45.

[1513] *See, e.g.*, Missouri Commission comments at 11 (supports LRIC for costing; LRIC is defined in pending state legislation); Wyoming Commission comments at 26-27 (draft rules propose use of TSLRIC as a price floor, with prices to include a contribution to shared, common, and joint costs, and the sum of prices for unbundled elements not to exceed retail for bundled services; incumbent LECs shall impute the prices of unbundled elements into the price floors of each of their own services that utilize the network elements).

[1514] Oklahoma Commission comments at Appendix A (Corporation Commission Telephone Rules OAC 165:55-17-25), pp.10-11.

York Commission sets prices on a case-by-case basis.[1515] Unbundled element prices also exist in several states pursuant to negotiated interconnection agreements that have either already been approved by state commissions or are under consideration.[1516]

632. Section 252(d)(1) requires, *inter alia*, that rates for interconnection and unbundled network elements be based on "cost (determined without reference to a rate-of-return or other rate-based proceeding)."[1517] We tentatively concluded in the NPRM that this language precludes states from setting rates by use of traditional cost-of service regulation, with its detailed examination of historical carrier investment and expenses.[1518] Instead, we indicated our belief that the statute contemplates the use of other forms of cost-based price regulation, such as the setting of prices based on forward-looking economic cost methodologies (such as LRIC) that do not involve the use of an embedded rate base. We sought comment on whether section 252(d)(1) forecloses consideration of historical or embedded costs or merely prohibits state commissions from conducting a traditional rate-of-return proceeding to establish prices for interconnection and unbundled network elements. Embedded costs are the costs that the incumbent LECs carry on their accounting books that reflect historical purchase prices, regulatory depreciation rates, system configurations, and operating procedures. We invited parties to comment on whether incumbent LECs should be permitted to recover some portion of their historical or embedded costs over TSLRIC.[1519]

633. In the NPRM, we noted that certain incumbent LECs had advocated that interconnection and access to unbundled element prices be based on the "efficient component pricing rule" (ECPR).[1520]

[1515] *Competition, The State Experience* at 80 (compilation of written responses by state commission staffs to questions by FCC staff, compiled by NARUC) (March 8, 1996).

[1516] According to information in our possession, such agreements have been negotiated in, among other states, Alabama, Florida, Georgia, Kentucky, Illinois, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee. Letterfrom W.W. Jordan, Executive Director -- Federal Regulatory, BellSouth, to William F. Caton, Acting Secretary, July 11, 1996 at Attachment (containing chart detailing agreements between BellSouth and new entrants in Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee); "Interconnection Agreement Under Sections 251 and 252 of the telecommunications Act of 1996, by and between, Ameritech Information Industry Services and MFS Intelenet of Illinois, Inc.," dated May 17, 1996 (filed July 25, 1996).

[1517] 47 U.S.C. § 252(d)(1)(B).

[1518] NPRM at para. 123.

[1519] *Id*. at para. 129.

[1520] *Id*. at para. 147. *See* William J. Baumol, *Some Subtle Issues in Railroad Deregulation*, 10 Int'l J. Trans. Econ. 341 (1983); William Baumol & Gregory Sidak, *Toward Competition in Local Telephony* (1994); William Baumol & Gregory Sidak, *The Pricing of Inputs Sold to Competitors*, 11 Yale J. on Reg. 171 (1994).

Under this approach, an incumbent LEC that sells an essential input element, such as interconnection, to a competing network would set the price of that input element equal to "the input's direct per-unit incremental costs plus the opportunity cost to the input supplier of the sale of a unit of input."[1521] We tentatively concluded in the NPRM that ECPR or equivalent methodologies are inconsistent with the section 252(d)(1) requirement that rates be based on "cost," and we proposed to preclude the states from using this methodology.[1522]

634. Section 254 requires the Commission and the Joint Board established thereunder to ensure that "[a]ll providers of telecommunications service . . . make an equitable and nondiscriminatory contribution to the preservation and advancement of universal service . . . ." That section further provides that "[t]here should be specific, predictable, and sufficient Federal and State mechanisms to preserve and advance universal service."[1523] The Conference Committee also explained that these provisions require any such universal service support payment to be, to the extent possible, "explicit, rather than implicit as many support mechanisms are today."[1524] In the NPRM, we sought comment on whether "it would be consistent with sections 251(d)(1) and 254 for states to include any universal service costs or subsidies in the rates they set for interconnection, collocation, and unbundled network elements."[1525] In particular, we discussed the "play or pay" system adopted by the state of New York in which interconnectors that agree to serve all customers in their self-defined service areas ("players") potentially pay a substantially lower interconnection rate than those that serve only selected customers ("payers") and are, therefore, liable to pay additional contribution charges.[1526] We noted that the statutory schedule for the completion of the universal service reform proceeding (15 months from the enactment of the 1996 Act) is different from that for this proceeding (6 months from the date of enactment of the 1996 Act). We asked whether the ability of states to take universal service support into account differs pending completion of the section 254 Joint Board proceeding or state universal

[1521] William Baumol & Gregory Sidak, *The Price of Inputs Sold to Competitors*, 11 Yale J. on Reg. 171, 178.

[1522] NPRM at para. 148.

[1523] 47 U.S.C. § 254(b)(4) and (b)(5).

[1524] Joint Explanatory Statement at 130-31. "In keeping with the conferees' intent that universal service support should be clearly identified, [section 254(e)] states that such support should be made explicit." *Id.* at 131; *see also* 47 U.S.C. § 254(e).

[1525] NPRM at para. 145.

[1526] *Id.*

service proceedings, pursuant to section 254(f), during any transition period that may be established in the section 254 proceeding or thereafter.[1527]

(2) Comments

635. *Forward-Looking Costs*. Most new entrants and IXCs agree that prices for interconnection and unbundled elements should be based on forward-looking, economic costs.[1528] Many state commissions also argue that, if federal pricing rules are adopted, forward-looking methodologies should serve as the basis for establishing rates in a competitive environment.[1529] The Department of Justice contends that pricing above forward-looking economic costs would subject competitors to substantial risk of a price squeeze because the real cost of a network element for the incumbent LEC will be its forward-looking economic cost, while the cost to the new entrant will be the higher price charged for the element by the LEC.[1530] Parties favoring a forward-looking, incremental cost methodology argue that it is the appropriate pricing standard for several reasons. First, such an approach simulates the prices for network elements that would result if there were a competitive market for the provision of such elements to other carriers.[1531] In such a market, these parties argue, competition would drive prices to forward-looking costs, even if such costs were lower than a firm's historical costs.[1532] Second, unbundled element prices based on forward-looking economic costs prevent incumbent LECs from exploiting their market power at the expense of their competitors that are dependent on the incumbent LEC's facilities.[1533] Third, a forward-looking incremental cost methodology creates the right investment incentives for competitive facilities-based entry and creates incentives for the market to move towards competition while preserving opportunities for competition

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[1527] *Id.*

[1528] *See, e.g.*, ACSI comments at 54-55; AT&T comments at 47; Jones Intercable comments at 25-26; LDDS comments at 60; MCI comments at 59, 61; NEXTLINK comments at 27; Sprint comments at 43-44; Teleport comments at 46; Telecommunications Resellers Ass'n comments 38-39; *see also* Ad Hoc Telecommunications Users Committee comments at 31-34; DoJ comments at 27-32; Frontier comments at 21-22; Texas Public Utility Counsel comments at 33-34; Attorneys General reply at 3; NCTA reply at 18-20; NTIA reply at 17-18 n.35.

[1529] *See, e.g.*, New York Commission comments at 3-4; Missouri Commission comments at 11; Kentucky Commission comments at 4-5; Wyoming Commission comments at 27-28; Ohio Commission comments at 41-43.

[1530] DoJ comments at 28-31.

[1531] *See, e.g.*, DoJ comments at 28-29.

[1532] *See, e.g.*, AT&T comments at Appendix C (Affidavit of William J. Baumol, Janusz A. Ordover, and Robert D. Willig), p.5; DoJ comments at 28-29.

[1533] *See, e.g.*, DoJ comments at 30.

even if some network elements prove to be resistant to competition.[1534] Fourth, a pricing methodology based on forward-looking economic costs minimizes the incumbent LECs' opportunities to engage in anticompetitive cross-subsidization that could delay the emergence of effective competition.[1535] Finally, these parties argue that pricing based on forward-looking economic costs will lead to lower prices for consumers.[1536]

636. While many commenters agree that the proper economic cost standard for interconnection and unbundled elements is one based on forward-looking LRIC, the record indicates a lack of consensus on the precise definition of such a methodology. While many parties, including some incumbent LECs, favor a pricing methodology based on TSLRIC,[1537] others contend that LRIC provides the appropriate basis for pricing interconnection and unbundled elements.[1538] AT&T argues that, because incumbent LECs will be providing access to unbundled network elements and interconnection, and not merely the individual services that use those elements, the relevant question is the incumbent LEC's cost of producing the entire demand for network elements.[1539] Because TSLRIC defines a cost increment relative to a hypothetical situation in which the supplier does not currently provide the network element at all and thus must construct and operate all element-specific facilities necessary to produce the network element, AT&T believes that TSLRIC, unlike LRIC, includes all element-specific fixed costs.[1540]

[1534] *See, e.g.*, AT&T comments at Appendix C (Affidavit of William J. Baumol, Janusz A. Ordover, and Robert D. Willig), p.7; DoJ comments at 29; NCTA comments at Appendix B (Unbundling, Interconnection, and Traffic Exchange: The Pricing of Access to Local Exchange Networks), p. 22.

[1535] *See, e.g.*, DoJ comments at 30-31.

[1536] *See, e.g.*, DoJ comments at 28-31.

[1537] *See, e.g.*, Ad Hoc Telecommunications Users Committee comments at 34-36; AT&T comments at 47-48; ALTS comments at 35-36; Ameritech comments at 63-64 (but must include recovery of joint, common, and residual costs); CFA/CU comments at 26-32 (including a contribution to joint and common costs); Citizens Utilities comments at 18; Comcast comments at 23; CompTel comments at 67-71; Competition Policy Institute comments at 8; DoJ comments at 28-31 (including any joint and common costs); Frontier comments at 21-22; Intermedia comments at 14; LDDS comments at 56, 62; MCI comments at 60-61; NCTA comments at 49-50; Ohio Consumers' Counsel comments at 24-25 (including a markup over TSLRIC to reflect a reasonable allocation of joint and common costs); SNET reply at 5-7 (including a reasonable contribution to common costs); Sprint comments at 44 (plus a reasonable contribution to joint and common costs), reply at 28-32; TCC comments at 14.

[1538] *See, e.g.*, Texas Statewide Tel. Cooperative comments at 8-11, 14.

[1539] AT&T comments at 47, Appendix C (Affidavit of William J. Baumol, Janusz A. Ordover, and Robert D. Willig), pp.6.

[1540] *Id*. at 48.

637. The Consumer Federation of America argues that costs must be analyzed consistently across all major services using the same cost methodology, *i.e.*, individual functionalities or specific capacities must have similar costs across services.[1541] AT&T argues that TSLRIC should exclude all costs attributable to the incumbent LECs' retailing operations, and that all other cost allocations should be competitively-neutral and assigned on an equally proportional basis relative to attributable costs.[1542] ALTS argues that the underlying data from a TSLRIC study should be accessible for purposes of replicating the study methods and comparisons to other public data.[1543] NTIA contends that the Commission should require the states to consider recovery of only those costs that the incumbent can convincingly demonstrate are incurred in service provisioning.[1544] Supporters of a forward-looking economic cost methodology argue that TSLRIC studies can be prepared quickly to establish interconnection and unbundled element prices.[1545]

638. Incumbent LECs generally oppose the adoption of a forward-looking, long-run incremental costing methodology.[1546] At least five major reasons are offered in opposition. First, opponents of a forward-looking, long-run incremental costing methodology argue that setting the price of each discrete service based on LRIC will not recover the total costs of the network because if prices are set equal to the cost of the last unit, total revenues will fall short of total costs.[1547] Second, PacTel argues that a forward-looking cost methodology also suffers from the "fallacy of perfect competition" because it does not account for the fact that, while it is true that competition drives the price of every product toward incremental cost, every multi-product firm must have some products priced far enough above incremental cost to recover its total costs and return a profit to investors.[1548] Third, incumbent LECs argue that setting prices based on the forward-looking economic cost of the element will not

[1541] CFA/CU comments at 32.

[1542] AT&T comments at 61-62, 64-65.

[1543] ALTS comments at 36-37.

[1544] NTIA reply at 28.

[1545] *See, e.g.*, LDDS comments at 64-65.

[1546] *See, e.g.*, Matanuska comments at 3-4; NYNEX comments at 46-47; PacTel comments at 66-67; TCA comments at 8.

[1547] *See, e.g.*, Bell Atlantic comments at Attachment 1 (Affidavit of Jerry A. Hausman), pp.3-4; NECA comments at 8; Rural Tel. Coalition comments at 25.

[1548] PacTel comments at 68-69; *see also* Rural Tel. Coalition reply at 26-27.

create incentives for new entrants to build their own facilities,[1549] and will discourage efficient entry and useful investment by both incumbent LECs and their competitors.[1550] Fourth, some opponents of a forward-looking, economic cost methodology contend that such an approach raises significant practical and administrative problems because LRIC studies are expensive to conduct, almost impossible to audit or review particularly for small entities seeking to enter the local exchange market, highly subjective, and the necessary data are under the exclusive control of the party subject to the agreement.[1551] USTA and other commenters also argue that use of LRIC cost studies would fail to capture differences in geographic regions, thereby denying small incumbent LECs a reasonable opportunity to recover their costs.[1552] Finally, many opponents of a forward-looking, economic cost approach to pricing interconnection and access to unbundled elements argue also that such a methodology precludes any contribution to joint and common costs and does not allow the recovery of historical costs.[1553] These parties contend that network providers must be permitted to recover their total costs of service, including a return on investment and a reasonable allocation of joint, common, and historical costs.[1554]

639. Incumbent LECs generally contend that costs should be based on the individual incumbent LEC's existing network design and technology instead of the idealized least-cost, most efficient network design and technology.[1555] USTA argues that, if competitors want to use an incumbent LEC's embedded plant, competitors should pay for the existing plant, not some theoretical,

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[1549] *See, e.g.*, Bell Atlantic comments at 38; SBC comments at 91-92.

[1550] *See, e.g.*, PacTel comments at 70; SBC comments at 90-92; *see also* U S West comments at Exhibit A (Federal Implementation of the Telecommunications Act of 1996: Competition in the Local Exchange), p.9.

[1551] *See, e.g.*, Bell Atlantic comments at Attachment 2 (Declaration of Robert W. Crandall), p.8; MFS comments at 54, reply at 11-12; NECA comments at 8.

[1552] *E.g.*, USTA comments at 45-50; Bay Springs reply at 8.

[1553] *See, e.g.*, BellSouth comments at 56-57; NYNEX comments at 50-52; PacTel comments at 65-66; SBC comments at 88, reply at 24-25; U S West reply at 9, 12 (stating that depreciation expenses should be properly allocated); *see also* NECA comments at 8; TCA comments at 8-9. For a discussion of recovery of joint, common, and embedded costs, *see infra* Section VII.B.2.a.

[1554] *See, e.g.*, Ameritech comments at 60, reply at 30-33 (stating that residual cost recovery must also be permitted); Bell Atlantic comments at 35-36 (stating that the recovery of the total costs of constructing and operating the networks must also be permitted); NYNEX comments at 42-44; USTA comments at Attachment 1 (Affidavit of Jerry A. Hausman), pp.5-6.

[1555] *See, e.g.*, Ameritech reply at 32-33; Bell Atlantic reply at 17-18; Bellsouth reply at 36-37; *see also* GVNW comments at 36; USTA comments at 40, reply at 21-22.

more efficient plant.[1556] In addition, these parties argue that, if a new entrant can purchase the unbundled element from the incumbent LEC at a price no higher than the cost of the least-cost, most efficient provider, then the new entrant has little incentive to invest in its own facilities. Ameritech also contends that section 252(d)(1) addresses recovery of the incumbent LEC's costs of providing interconnection and unbundled network elements, not the costs of a hypothetical carrier.[1557]

640. On the other hand, several new entrants argue that a forward-looking economic cost methodology should be based on an efficient provider's costs of producing a service.[1558] These parties contend that, in a competitive market, prices are determined by the cost of efficient potential entrants, not the embedded costs of existing firms.[1559] In addition, a pricing standard based on the costs of the element using the most-efficient technology prevents incumbent LECs from charging competitors for the cost of facilities that would in fact be used in large part by the incumbent LECs themselves to compete in new markets such as interexchange service.[1560] Sprint, however, argues that prices should be based on the incumbent LEC's average utilization and existing network design and technology, not on an idealized network and technology that may bear no relationship to the incumbent LECs existing operations.[1561]

641. USTA, Bell Atlantic, and BellSouth have asserted in various filings and *ex parte* presentations that TSLRIC-based pricing would not properly compensate incumbent LECs for certain factors that affect capital costs and economic depreciation rates.[1562] First, when technological progress lowers equipment costs, the replacement or forward-looking economic cost of certain durable sunk

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[1556] USTA comments at 40.

[1557] Ameritech reply at 32.

[1558] *See, e.g.*, ACSI comments at 56; AT&T comments at 57-60 (optimally configured and sized assets with current technology and efficient operating practices); AT&T comments at Appendix C (Affidavit of William J. Baumol, Janusz A. Ordover, and Robert D. Willig), p. 10 (efficient, cost-minimizing competitor); GST comments at 26-27 (costs of an efficient LEC rather than the actual costs of an incumbent LEC); Teleport reply at 30 (best available technology at today's prices);*see also* DoJ reply at 9-11 (best generally available technology); Louisiana Commission comments at 4, 15; Telecommunications Resellers Ass'n comments at 38 (most efficient available technology).

[1559] *See, e.g.*, TCC comments at 17.

[1560] DoJ reply at 10.

[1561] Sprint reply at 31-32.

[1562] USTA reply comments at Attachment 1 (Reply Affidavit of Jerry A. Hausman); Bell Atlantic comments at Attachment 1 (Affidavit of Jerry A. Hausman); Letter from Robert T. Blau, Vice President, Executive and Federal Regulatory Affairs, BellSouth, to William F. Caton, Acting Secretary, FCC, July 25, 1996, at Attachment (Response to Hubbard and Lehr).

investments can be expected to decline over time. In this case the correct measure of cost over any period of time should include the expected decline in economic value during that period.[1563]

642. Second, these parties argue that, when investments in facilities needed to meet a specific level of demand are sunk and irreversible, an incumbent LEC may not be able to recover these costs over the physical life of the facility, because demand may decrease as new entrants elect to build their own facilities. When entry is possible using current technology, either competition from these entrants, or rate regulation can prevent retail service prices from rising significantly, which will place an effective ceiling on profits. If demand for a service falls in a market in which the incumbent LEC is the only supplier and owner of sunk facilities, however, there will be no corresponding exit of other carriers that will prevent prices and profits from falling. Because of this asymmetric effect of changing market conditions on an incumbent LEC's profits, these parties claim that increasing the uncertainty due to entry in the local exchange market will increase the cost of capital to the incumbent LEC. They then assert that the inability of TSLRIC to account for the risks associated with sunk facilities can lead to understating the true economic cost of an element by a factor of three.[1564] Finally they assert that empirical research that shows firms' hurdle rates in excess of the market cost of capital shows that the considerations of risk associated with sunk investment significantly raises a firm's cost of capital.[1565]

643. *Joint and Common Costs*. Several incumbent LECs contend that a forward-looking, economic cost methodology does not take into account either joint or common costs.[1566] Although a few parties contend that incumbent LECs do not need a mark-up over TSLRIC to recover joint and common costs because incumbents are presumably already recovering these costs,[1567] commenters generally agree that incumbent LECs should be permitted to recover some measure of forward-looking

[1563] We note that USTA seems to present a contradictory argument regarding the expected effect of this issue -- here Hausman claims that prices will decrease rapidly, whereas in our price cap proceeding, USTA sponsored testimony by Christenson that claimed input prices would generally increase at the rate of inflation. USTA comments in CC Docket No. 94-1, at 25-27.

[1564] *See* USTA reply at Attachment 1 (Reply Affidavit of Jerry A. Hausman), p.1.

[1565] *Id*. at 7.

[1566] *See, e.g.*, Bell Atlantic comments at Tab 2 (Declaration of Robert W. Crandall), p.9, reply at Attachment 1 (Declaration of Alfred E. Kahn and Timothy J. Tardiff), p.6; BellSouth comments at 51; Municipal Utilities comments at 19-21; SBC reply at 24-25; TDS comments at 18-19.

[1567] *See* Telecommunications Resellers Ass'n comments at 39-40; Texas Public Utility Counsel comments at 19-20; WinStar comments at 29, reply at 9-10.

joint and common costs.[1568] These commenters argue that pricing at incremental cost without joint and common costs is economically inefficient because it permits competitors to offer the incumbent LECs' services without making a contribution to the common costs that the LECs incur in offering the service.[1569] They further contend that excluding recovery of joint and common costs will distort technological decisions because the LEC is encouraged to invest in less efficient technologies that have higher incremental costs and lower common costs, which would tend to destroy economies of scope.[1570] Finally, incumbent LECs fear that they will be forced to increase retail rates to recover these unrecovered common costs, while their competitors that do not face such costs will reduce their own prices and have little incentive to invest in facilities of their own.[1571]

644. There is no consensus in the record on the magnitude of the joint and common costs at stake. Although commenters argued that the amount of common costs varies dramatically due to differences in location, network construction, and equipment,[1572] several parties are skeptical that there are significant joint and common costs between network elements given the relative modularity of the network and associated functions.[1573] These parties contend that, if joint and common costs are incurred, incumbent LECs must quantify them so that a state commission can determine whether and precisely how much contribution is needed.[1574] The Department of Justice asserts that, when developing a TSLRIC for unbundled network elements, it is preferable, where possible, to focus on costs of facilities and network elements rather than services that use those facilities in order to arrive at a more accurate determination of economic costs and to reduce the amount of costs that must be treated as joint or common.[1575] The incumbent LECs disagree with the new entrants' characterization

[1568] *See, e.g.*, Ameritech comments at 60; Bell Atlantic comments at 36; Citizens Utilities comments at 19; Cincinnati Bell comments at 24-25; Colorado Commission comments 45-46; DoJ reply at 6; GTE Comments at 61-62; Kentucky Commission comments at 5; Lincoln Tel. comments at 13; Mass. Commission comments at 11-12; NCTA comments at 49-50; Ohio Consumers' Counsel comments at 24; SBC comments at 91; Sprint comments at 43-44; AT&T reply at 28; NTIA reply at 19-21; USTA reply at 19.

[1569] *E.g.*, BellSouth comments at 52-53; GTE comments at Attachment 3 (Affidavit of Edward C. Beauvais, Ph.D.), p.3.

[1570] *See, e.g.*, BellSouth comments at 53; Lincoln Tel. comments at 13.

[1571] *E.g.*, BellSouth comments at 53-54.

[1572] *See, e.g.*, Municipal Utilities comments at 19-20; NARUC reply at 9.

[1573] *See, e.g.*, AT&T comments at Attachment or Appendix C (Affidavit of William J. Baumol, Janusz A. Ordover, and Robert D. Willig), pp.13-14; Competition Policy Institute comments at 19; DJ comments at 31-32, reply at 8; Texas Public Utility Counsel comments at 24-25.

[1574] Texas Public Utility Counsel comments at 17-28; Sprint comments at 47-50.

[1575] DoJ reply at 8; *see also* Competition Policy Institute comments at 19.

of these costs as *de minimis* and argue that there is no evidence that unrecovered joint and common costs are much lower in the TSLRIC rates for physical elements than a TSLRIC standard based on the cost of providing services.[1576]

645. There is considerable disagreement in the record over the appropriate method of allocating joint and common costs under a TSLRIC approach. AT&T contends that the vast majority of the relevant costs will be causally attributed to particular network elements in the calculation of TSLRIC, and that we should prescribe rigid allocators that limit the incumbents' ability to manipulate prices by imposing high markups on new entrants.[1577] This approach, it is argued, is more competitively neutral than Ramsey pricing, which allocates costs based on inverse demand elasticity.[1578] In contrast, incumbent LECs advocate allocation of joint and common costs based on inverse demand elasticity,[1579] *i.e.*, according to Ramsey pricing principles.[1580] New entrants and other parties oppose the use of Ramsey pricing for interconnection and unbundled network elements for use in a market that is moving toward competition over the long-run.[1581] They contend that Ramsey pricing enables LECs to shift costs associated with entry into new competitive markets over to captive services.[1582] One state commission responds that the Commission's concern in this regard would be addressed by calculating demand elasticities on the basis of the total industry demand for the service, which would negate the influence of competition on demand elasticities.[1583]

646. Commenters suggested other means of allocating joint and common costs.

[1576] *E.g.*, PacTel reply at 27; *see also* Cincinnati Bell reply at 10.

[1577] *See* AT&T comments at 61-62.

[1578] *See, e.g.*, Teleport comments at 47-48.

[1579] *See e.g.*, GTE comments at 63, comments at Attachment 3 (Affidavit of Edward C. Beauvais, Ph.D.), pp.4-6; *see also* Mass. Commission comments at 11-12.

[1580] *See* Frank P. Ramsey, *A Contribution to the Theory of Taxation*, 37 Econ. J. 47 (1927); *see generally* Kenneth E. Train, *Optimal Regulation: The Economic Theory of Natural Monopoly* 15-40 (1992) (discussing efficiency properties of Ramsey prices); Bridger M. Mitchell & Ingo Vogelsang, *Telecommunications Pricing: Theory and Practice* 43-61 (1991).

[1581] *See, e.g.*, Ad Hoc Telecommunications Users Committee comments at 39-41; CompTel comments at 79-80; MECA comments at 45; Teleport comments at 47-48; Texas Public Utility Counsel comments at 27; WinStar reply at 10-11.

[1582] *See, e.g.*, Ad Hoc Telecommunications Users Committee comments at 38-39.

[1583] *See, e.g.*, Mass. Commission comments at 12.

For example, certain incumbent LECs argue that these costs must not be shifted from interconnection and unbundled elements to residential subscribers,[1584] while certain new entrants suggest that these costs should be recovered at the retail level.[1585] Many new entrants agree that the Commission should require allocation of joint and common costs that minimizes the opportunity for incumbent LECs to harm competitors through strategic pricing.[1586] For example, some new entrants argue that states should be required to minimize allocation of joint and common costs to bottleneck or essential network elements.[1587] MCI and Sprint assert that such costs should be spread across all services provided by a carrier in proportion to the TSLRIC for each service.[1588] A few commenters assert that the Commission should adopt a fixed mark-up over TSLRIC for allocation of joint and common costs.[1589] Cable & Wireless supports the adoption of a rule that allocates common costs uniformly for all services offered. It argues that a disproportionate allocation system, that for example, assigns common costs strictly to retail services purchased for resale by small companies, but not to unbundled network elements utilized by larger competitors, would prove detrimental to the development of local competition.[1590] Finally, certain parties suggested that regardless of the method ultimately used to allocate joint and common costs, TSLRIC should serve as the floor[1591] and prices should not exceed stand-alone costs.[1592]

647. *Reasonable Profit.* Commenters disagree over what should constitute a "reasonable profit." Numerous commenters argue that a TSLRIC-based methodology for the pricing of

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[1584] *See, e.g.*, Puerto Rico Tel. comments at 10; Rural Tel. Coalition comments at 27.

[1585] *E.g.*, MCI reply at 9-10.

[1586] *See, e.g.*, MCI reply at 9-10.

[1587] *See, e.g.*, LCI comments at 4-5 (even under a TSLRIC methodology, it may be necessary to allocate joint direct costs among classes of service); Time Warner comments at 52-53 (only elements that can be duplicated by competitors or that are already available from other sources should include a reasonable markup over TSLRIC for shared and common costs);*see also* CFA/CU comments at 33-35 (allocation to such elements should be no more than the allocation of such costs to basic service).

[1588] *See* AT&T comments at 64; MCI reply at 9-10; Sprint comments at 47.

[1589] *See, e.g.*, Competition Policy Institute comments at 19 (suggesting an overhead loading of six percent);*see also* Sprint comments at 48-49 (joint and common costs should be no more than 15 percent of TSLRIC).

[1590] Cable & Wireless comments at 35.

[1591] *See, e.g.*, Citizens Utilities comments at 19; Florida Commission comments at 26; SBC comments at 93-94.

[1592] *See, e.g.*, AT&T comments atAppendix C (Affidavit of William J. Baumol, Janusz A. Ordover, and Robert D. Willig), pp.14-15; TDS comments at 21.

interconnection and unbundled network elements includes a reasonable profit and is, therefore, consistent with the 1996 Act.[1593] These commenters argue that economic measures, such as TSLRIC, reflect a reasonable profit by including the cost of capital.[1594] Time Warner and NEXTLINK contend that permitting incumbent LECs to receive a profit above that contained within TSLRIC pricing would provide them with a greater return on facilities than was permitted under rate-of-return regulation by "double-counting" the profit.[1595] Furthermore, NEXTLINK rejects the notion that profit includes the recovery of embedded costs or is a means of recovering subsidies for universal service currently recovered through access charges such as the transport interconnection charge or carrier common line charge, or their intrastate equivalents.[1596] Similarly, LDDS believes that "reasonable profit" cannot be read to include contribution to costs having nothing to do with providing the network elements or interconnection that are the subject of a section 252 pricing standard.[1597]

648. Incumbent LECs, however, contend that setting rates on a TSLRIC-based methodology alone would violate section 252(d)(1) by precluding recovery of a reasonable profit.[1598] NYNEX and USTA state that profit is what a firm makes after it recovers its total costs of providing all of its services, including its investment-related costs.[1599] Ameritech similarly contends that the term "reasonable profit" means the ability to earn positive economic profits as an incentive for efficiency and innovation.[1600] PacTel argues that, in order to allow for a reasonable profit, rates for interconnection and unbundled elements must permit full recovery of historical accounting costs. PacTel charges that the federal courts have held that the determination of a "reasonable profit" should consider the effect on

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[1593] *See, e.g.,* CompTel comments at 69-70; LDDS comments at 61; MCI comments at 61-62; Texas Public Utility Counsel comments at 19-20; WinStar comments at 29; Ad Hoc Telecommunications Users' Committee reply at Appendix A (Interconnection Pricing Standards for Monopoly Rate Elements in a Potentially Competitive Local Telecommunications Market), p.12.

[1594] *E.g.,* AT&T reply at 31; CompTel comments at 69-70, reply at 39; DoJ reply at 9; Frontier reply at 12-15; MCI comments at 61-62; Texas Public Utility Counsel comments at 19-20; WinStar comments at 29.

[1595] NEXTLINK comments at 28; Time Warner reply at 31-32.

[1596] NEXTLINK comments at 28-29.

[1597] LDDS comments at 61.

[1598] *See, e.g.,* GTE comments at 60; NYNEX comments at 51-52; PacTel comments at 69; SBC comments at 88; TCA comments at 9; TDS comments at 18; *see also* GTE comments atAttachment 3 (Affidavit of Edward C. Beauvais, Ph.D.), p.9.

[1599] *See* NYNEX comments at 42; USTA comments at 43.

[1600] *See* Ameritech comments at 70-71.

the carrier's whole enterprise and, therefore, the sum of the carrier's rates must enable it to recover its total historical costs.[1601]

649. Several parties contend that the issue of what constitutes a reasonable profit should be left to the states. Citizens Utilities contends that the issue of whether profit is reasonable is a question of fact to be resolved, where necessary, in arbitration proceedings.[1602] Time Warner argues that what constitutes reasonable profit should, as a matter of policy, vary depending on the nature of the facilities or services being provided and should, therefore, be left to the states.[1603] The Illinois Commission argues that states may even use rate-of-return methodologies for the determination of reasonable profit.[1604]

650. There is also disagreement among the commenters regarding the force of the reasonable profit language in section 252. While many incumbent LECs interpret Section 252(d)(1) as *requiring* prices to include a reasonable profit,[1605] certain new entrants and other parties argue that the reasonable profit language is permissive, not mandatory.[1606] For example, several LECs contend that, to avoid confiscation of their property, LECs are entitled to full operating expenses as well as the capital costs of doing business and a reasonable profit.[1607] The Ohio Consumers' Counsel, however, argues that the language of section 252(d)(1) indicates that it is at the discretion of the state commissions to determine whether to allow rates to reflect a reasonable profit.[1608]

651. USTA contends that "purely forward-looking TSLRIC" should not be the price for interconnection elements because "telecommunications networks are mostly sunk costs."[1609] It argues that, when investment in facilities requires sunk and irreversible costs, a firm may not be able to recover

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[1601] *See* PacTel comments at 65-66, *citing FPC v. Hope Natural Gas*, 320 U.S. 591 (1944) and *Jersey Central Power & Light v. FERC*, 810 F.2d 1168, 1172 (D.C. Cir. 1987).

[1602] Citizens Utilities comments at 17.

[1603] Time Warner comments at 52.

[1604] Illinois Commission reply at 15.

[1605] *See, e.g.*, PacTel comments at 65-66.

[1606] *See, e.g.*, AT&T reply at 31; Cox reply at 29; DoJ reply at 15.

[1607] *See, e.g.*, MECA comments at 44, 49; PacTel comments at 65-67.

[1608] Ohio Consumers' Counsel comments at 26.

[1609] *See* USTA reply at Attachment 1 (Reply Affidavit of Professor Jerry A. Hausman), p.1.

this investment over the physical life of the facilities due to the risks of decreases in value resulting from future competition. USTA contends that allowing other carriers into the provision of local exchange service will subject incumbent LECs to these types of risks. It then claims that TSLRIC calculations do not appropriately account for these additional risks.

652. USTA also argues that the risks to which the incumbent LECs will be subject as a result of competition in the local exchange market include the risks from facing new competition, technological change, change in demand, and interest rates. It further argues that these risks will result in many situations in which the incumbent LECs may face a reduction in profits (downside risk) and no situations in which the incumbent LECs may see an increase in their profits. Thus, incumbent LECs must be compensated for these additional risks, according to USTA. It concludes that TSLRIC calculations fail to provide this compensation, stating "TSLRIC can be biased downward by a factor of three."[1610]

653. Similarly, Bell Atlantic asserts that, in a market where input prices are declining, a TSLRIC standard is not the appropriate standard because, "in a world of continual technological progress, it would be irrational for firms constantly to update their facilities in order completely to incorporate today's lowest-cost technology."[1611] Thus, it argues that because a carrier would not replace its entire existing set of facilities (a sunk investment) with the best available technology at a given point, the price of the best available technology understates the cost of providing service.[1612]

654. The Consumer Federation of America, disputing the incumbent LECs' claims regarding risk premiums, argues that risk premiums are reflected in the large returns incumbent LECs have already earned.[1613]

655. *Embedded Costs.* IXCs, competitive local entrants, and others interpret section 251(d)(1) as precluding states from setting rates by use of traditional cost-of-service regulation, with its detailed examination of historical accounting costs and reliance on an embedded rate base.[1614] These

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[1610] *Id.* at 6. Presumably, by TSLRIC, Professor Hausman is referring to a TSLRIC assuming a risk free rate of return and a depreciation rate that encompasses the physical life of assets.

[1611] Bell Atlantic reply at Exhibit 1(Declaration of Alfred E. Kahn and Timothy J. Tardiff), para.8a.

[1612] *Id.*

[1613] *See* CFA/CU comments at 61-63.

[1614] *See, e.g.*, AT&T comments at 47; LDDS comments at 60; MCI comments at 61-62; MFS comments at 59; Sprint comments at 43; Teleport comments at 46; Time Warner comments at 51; Frontier comments at 21; Excel comments at 9; ACSI comments at 54-55; WinStar comments at 37-38; GST comments at 29-30; *see also* Ad Hoc Telecommunications Users Committee comments at 30-31; DoJ comments at 27-32, reply at 14; Kentucky Commission

parties argue that some measure of forward-looking economic costs, not historical costs, should be the only basis for setting rates for interconnection and unbundled network elements because only forward-looking economic costs meet the statutory requirement in section 252(d)(1) that such rates be "determined without reference to a traditional rate-of-return or other rate-based proceeding." Potential new entrants and many other commenters argue that historical or embedded costs should not be included in the prices of interconnection and unbundled network elements.[1615] NTIA asserts that it is unwise to include in the prices for interconnection and unbundled elements an amount to recover historical costs when the size of any shortfall between historical costs and TSLRIC's forward-looking costs will not be determined for many years after interLATA entry.[1616]
These parties contend that permitting incumbent LECs to recover embedded costs in the prices they charge competitors for interconnection and unbundled network elements, while the incumbents experience much lower incremental costs, will result in inefficiently high prices that will either cause new entrants to over-build existing systems instead of maximizing the efficient use of the existing incumbent LEC's network, or discourage entry and investment in the local markets altogether.[1617] Moreover, opponents of embedded cost recovery maintain that these costs reflect past inefficiencies and their recovery does not create any incentive for incumbent LECs to maximize their network and operational efficiencies.[1618] Commenters also argue that embedded cost recovery permits incumbents to engage in anticompetitive, strategic, or discriminatory pricing by manipulating the cost of individual rate elements.[1619]

656. In response to claims that the incumbent LECs are entitled to recover embedded costs incurred as a result of their regulation, opponents of embedded cost recovery argue that, at the state

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comments at 4; Texas Public Utility Counsel comments at 33-34; Telecommunications Resellers Ass'n comments at 38; Michigan Commission comments at 14; Pennsylvania Commission comments at 29; Ohio Commission comments at 42-43; Attorneys General reply at 7-8.

[1615] *See, e.g.*, AT&T comments at 47; CFA/CU reply at 18-19; DoJ comments at 27-32; N. Economides comments at 3; Frontier comments at 21-22, reply at 13; Jones Intercable comments at 25-26; LDDS comments at 60; MCI comments at 61-62; MFS comments at 59; Michigan Commission comments at 14; Sprint comments at 43; Teleport comments at 46; TCC comments at 15-16; Texas Public Utility Counsel comments at 33-34; Time Warner comments at 51; WinStar comments at 37-38;*see also* Ad Hoc Telecommunications Users' Committee reply at Appendix A (Interconnection Pricing Standards for Monopoly Rate Elements in a Potentially Competitive Local Telecommunications Market), pp.2-6;

[1616] *See* NTIA reply at 28-29.

[1617] *See, e.g.*, Competition Policy Institute comments at 8; TCC comments at 15-16.

[1618] *See, e.g.*, Ad Hoc Telecommunications Users Committee comments at 53-54.

[1619] TCC comments at 15-16

level, incumbent LECs have been opting for incentive-based regulation and so have foregone the right to claim entitlement to recovery of embedded costs in exchange for the flexibility to price their services to meet competition.[1620] AT&T argues that, because the majority of the incumbent LECs' embedded plant was installed after 1990, the forward-looking replacement costs of this old plant may in many cases be higher than the incumbent LECs' embedded costs.[1621] MCI disagrees with incumbent LECs' claims that excluding historical costs will discourage future investment by incumbent LECs and argues instead that incumbent LECs make investment decisions based upon expected future earnings.[1622]

657. Most incumbent LECs and some other parties dispute the claim that historical costs are precluded by the statute,[1623] asserting instead that section 252(d)(1) merely prohibits the use of a rate-of-return *proceeding* to determine such rates.[1624] Incumbent LECs argue that any pricing methodology the Commission adopts should permit recovery of historical or embedded costs in the prices of interconnection and unbundled network elements.[1625] NYNEX specifically proposes a cost-accounting pricing methodology that places the burden on the incumbent LEC to identify the specific accounting data that would be associated with the particular type of interconnection requested by the competing carrier under section 251.[1626]

658. USTA cites reports that estimate that embedded costs that would not be recouped under a solely forward-looking pricing methodology are between $13 billion and $18.4 billion.[1627] Incumbent

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[1620] *See, e.g.*, GST comments at 29-30; WinStar comments at 38.

[1621] *See* AT&T reply at 33. For a detailed discussion, *see* AT&T reply at Appendix C (Affidavit of Lee Selwyn and Patricia Kravtin), pp.1-4.

[1622] *See* MCI reply at 15-16.

[1623] *See, e.g.*, Bell Atlantic comments at 37; BellSouth reply at 35-37; Colorado Commission comments at 34-35; GVNW comments at 35-36; Municipal Utilities comments at 19; NYNEX comments at 46-47; Ohio Consumers' Counsel comments at 23; PacTel comments at 65; Roseville Tel. comments at 6-8; Rural Tel. Coalition comments at 26-28; SBC comments at 88; TDS comments at 17-18; Texas Statewide Telephone Coop. Inc. comments at 7; USTA comments at 40.

[1624] *See, e.g.*, Bell Atlantic comments at 37; Municipal Utilities comments at 19; Ohio Consumers' Counsel comments at 23; Texas Statewide Telephone Coop. comments at 7.

[1625] *See, e.g.*, Alaska Tel. Ass'n comments at 4-5; Ameritech comments at 60; Bell Atlantic comments at 36; Cincinnati Bell comments at 30; Lincoln Tel. comments at 11-12; Roseville Tel. comments at 7-8; SBC comments at 59; SNET comments at 29; USTA comments at 40; *see also* NECA comments at 6, reply at 8-9.

[1626] NYNEX comments 54-56, reply at 27.

[1627] USTA comments at 55.

LECs contend that, because incumbent LECs must offset this shortfall of revenues against total costs that is created by a failure to recover embedded costs, they will be discouraged from investing to maintain and upgrade their networks in order to avoid the risk of again being unable to recover embedded costs.[1628] In addition, they argue that they incurred these embedded costs under federal and state regulatory oversight, which imposed on incumbent LECs social policy obligations and uneconomic costing practices, and that they therefore should be permitted to recover them.[1629] Incumbent LECs also assert that past investments were made under the belief that costs would be recovered, and that rates collected in the past did not reflect the risk that embedded costs might not be recovered in future rates.[1630] Several commenters argue that the opportunity to recover embedded costs through rates for interconnection and unbundled elements is particularly important for small and rural incumbent LECs.[1631] Finally, some parties also contend that, if they are not permitted to recover embedded costs, these costs must be recouped elsewhere, thus putting pressure on the states to recover these costs through local rates.[1632]

659. Despite their objections to embedded cost recovery, some non-incumbent parties explain conditions under which some limited recovery should be permitted. For example, MCI argues that, although embedded costs should not be recovered, it would be appropriate to allow incumbent LECs to recover any depreciation reserve deficiency,[1633] which MCI estimates is only a small percentage of the residual between existing revenues and the revenues generated by a forward-looking, TSLRIC pricing of unbundled network elements.[1634] The Ad Hoc Telecommunications Users Committee asserts that, at a minimum, any nominal losses in economic value attributed to stranded investment should be

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[1628] *See, e.g.*, Bell Atlantic comments at Attachment 1 (Affidavit of Professor Jerry A. Hausman), p.2; Lincoln Tel. comments at 16-17; USTA reply at 23.

[1629] *See, e.g.*, Ameritech reply at 30-31; BellSouth comments at 57; Lincoln Tel. comments at 16-17.

[1630] *See* Bell Atlantic reply at Exhibit 2 (Declaration of Richard A. Epstein), p.4.

[1631] *E.g.*, Home Tel. comments at 4; NECA comments at 9; TCA comments at 8; Texas Statewide Tel. Cooperative, Inc. comments at 9; Bay Springs reply at 10.

[1632] *See, e.g.*, USTA comments at 56;Wyoming Commission comments at 31-32;*see also* New York Commission reply at 9; *cf.*, Alabama Commission comments at 24-25; Texas Commission comments at 23, 26.

[1633] A reserve imbalance exists when the carrier's actual "book" depreciation reserve differs from its "theoretical" reserve, which is the reserve which would exist if service lives and salvage values had been accurately forecast in the past. When the theoretical reserve exceeds the book reserve, the imbalance is a reserve deficiency. For most LECs the reserve imbalance is an overall deficiency*Amortization of Depreciation Reserve Imbalances of Local Exchange Carriers*, CC Docket No. 87-447, Report and Order, 3 FCC Rcd 984 (1988).

[1634] *See* MCI comments at 73-75.

weighed against the appreciation in value that incumbent LECs have experienced as reflected in share prices and market-to-book ratios.[1635] The Consumer Federation of America proposes that stranded investment might be recovered through an industry-wide recovery fund, if incumbent LECs can satisfy a rigorous set of showings to ensure that ratepayers are fairly treated.[1636] Finally, AT&T argues that, if the Commission determines that some portion of the residual should be recovered, it should be recovered through a competitively neutral, transitional, funding and distribution mechanism that will not distort competition.[1637]

660. *Opportunity Cost -- ECPR.* Incumbent LECs are the primary advocates for ECPR pricing of interconnection and unbundled network elements.[1638] They argue generally that ECPR is the approach that most closely parallels the method a firm in a competitive market would employ when faced with the opportunity of selling inputs to firms that intend to compete with it in its final product market.[1639] GTE asserts that the ECPR's purpose is to reward efficient entry into the market for the end product by ensuring that the incumbent LEC sells network access to itself and to its rivals on the same, nondiscriminatory terms.[1640] Thus, GTE claims, the ECPR sets prices for network elements that provide incentives for efficient entry and compensates incumbent LECs for the economic costs associated with sale of such elements.[1641] GTE further argues that ECPR accomplishes these tasks regardless of the market structure and regardless of the presence or absence of economic rents.[1642] SBC argues that the ECPR is equivalent to the avoided cost rule used for setting the prices of resold services and equivalent to the efficient imputation rule for pricing of retail services.[1643] Supporters of

[1635] Ad Hoc Telecommunications Users Committee comments at 26-27.

[1636] *See* CFA/CU comments at 67-68.

[1637] *See* AT&T comments at 70-73.

[1638] *See, e.g.*, Ameritech comments at 91-93; GTE reply at 36-38; MECA comments at 50-52; PacTel comments at 69-71; SBC comments at Appendix A (Efficient Component Pricing Rule), pp.1-5; *see also* PacTel reply at Appendix C (Declaration of Richard D. Emerson).

[1639] *See, e.g.*, Rural Tel. Coalition reply at 28-30.

[1640] GTE comments at Attachment 4 (An Empirical Analysis of Pricing Under Sections 251 and 252 of the Telecommunications Act of 1996), p.7.

[1641] *Id.* at p.I-i

[1642] *Id.* at p.III-7.

[1643] SBC comments atAppendix A (Efficient Component Pricing Rule), pp.1-5.

ECPR pricing also argue that prices will continue to move toward competitive levels where competition is provided by a more efficient carrier than the incumbent LEC.[1644]

661. New entrants and many other commenters oppose the use of the ECPR to set prices for interconnection and access to unbundled network elements.[1645] These parties argue that ECPR does not comply with the statutory mandate that interconnection and network elements be based on costs. They assert that using ECPR would allow incumbent LECs to retain monopoly rents and protect the incumbent LECs from competitive disciplinary market forces.[1646] Opponents of ECPR contend that ECPR pricing does not replicate a competitive environment, but instead perpetuates inefficient and anticompetitive aspects of the current pricing structure. Other commenters argue that the incumbent LECs may use ECPR to exclude or marginalize a more efficient rival in the complementary market by forcing the rival to operate on the higher end of its cost curve through higher interconnection charges. They also argue that prices based on ECPR create incentives for incumbent LECs to shift costs of their competitive services to their bottleneck services, which distorts competition.[1647] Finally, opponents of ECPR assert that ECPR pricing shields the largest share of costs possible from competition, preserves the status quo, and imposes a barrier to entry.[1648]

662. Baumol, Ordover, and Willig, principal authors of the theory, explain that ECPR is not applicable for pricing of interconnection and unbundled network elements because the existing end user rates for local telecommunications are not appropriate as a baseline for ECPR. They claim that cross-subsidies are common in the current rates, and rates depart systematically from pertinent costs. Baumol, Ordover, and Willig conclude that applying ECPR to existing rates would result in component prices that lock in the incumbent LECs' monopoly profits and pricing inefficiencies, and would attract

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[1644] *See, e.g.*, Ameritech comments at 93; GTE comments at Attachment 4 (An Empirical Analysis of Pricing Under Sections 251 and 252 of the Telecommunications Act of 1996), p.III-6-8.

[1645] *See, e.g.*, Ad Hoc Telecommunications Users Committee comments at 55; ALTS reply at 26-29; Cable & Wireless comments 35; California Commission reply at 20; CFA/CU comments at 41-45; CompTel reply at 40-49; Cox reply at 29; DoJ reply at 11-13; Frontier comments at 23; Mass. Attorney General comments at 6-9; MCI comments at 70-71, reply at 16; MFS comments at 60 n.67; Ohio Consumers' Counsel comments at 25 n.7, reply at 15; Sprint comments at 59 n.33; Texas Public Utility Counsel comments at 36; Time Warner comments at 56-58; Telecommunications Resellers Ass'n comments at 41-42; WinStar comments at 41.

[1646] *See, e.g.*, Cable & Wireless comments 35; California Commission reply at 20; CompTel reply at 40; Mass. Attorney General comments at 6-8; Time Warner comments 56-58; Telecommunications Resellers Ass'n comments at 41-42.

[1647] *See, e.g.*, N. Economides comments at 4-6.

[1648] *See, e.g.*, CFA/CU comments at 42.

inefficient entry, where rates are too high, and would preclude efficient entry where rates are too low.[1649]

663. *Universal Service Subsidies.* Most parties other than incumbent LECs and some state commissions agree that it would be inconsistent with both the cost-based rate requirements of section 252(d)(1) and the requirement in section 254(b)(5), that universal service support mechanisms "be specific [and] predictable. . ."[1650] for states to include any universal service subsidies in the rates they set for interconnection, collocation, and unbundled network elements.[1651] They argue that the 1996 Act requires that rates reflect the economic cost of providing network elements and interconnection and does not authorize subsidies that have nothing to do with economic costs.[1652] With regard to the requirements of section 254, these parties argue that, to the extent rates need to be subsidized for universal service purposes, the subsidy should be collected from all carriers on a non-discriminatory and competitively neutral basis.[1653] The Washington Commission relates its own experience of rejecting US West's request for a per minute universal service charge to cover "carrier of last resort" obligations and its finding that residential rates were sufficient to cover the costs of residential service.[1654]

664. In contrast, several incumbent LECs and state public utility commissions maintain that incumbent LECs should be permitted to recover their embedded costs in the rates set for interconnection, collocation, and unbundled network elements. These commenters claim that rates based on incremental costs alone fail to account for certain costs historically incurred to accomplish

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[1649] *See* AT&T comments at Appendix C (Affidavit of William J. Baumol, Janusz A. Ordover, and Robert D. Willig), pp.8-9.

[1650] 47 U.S.C. § 254(b)(5).

[1651] *See, e.g.,* ACTA comments at 23; AT&T comments at 70-73; Competition Policy Institute comments at 20; CompTel comments at 73-74; DoJ comments at 56-59; MCI comments at 75; NEXTLINK comments at 29; Sprint comments at 61-62; Telecommunications Resellers Ass'n comments at 39 n.76; Teleport comments at 48-49; WinStar comments at 40-41, reply at 13-14.

[1652] AT&T and CompTel further contend that to permit any universal service subsidies in the rates set for interconnection, collocation and unbundled network elements would be to base rates on the embedded costs of incumbent LEC expenditures rather than the forward-looking economic costs of providing a network element as mandated by section 252(d)(1).*See* AT&T comments at 70-73; CompTel comments at 72-74.

[1653] *See, e.g.,* ACTA comments at 23; AT&T comments at 69; Massachusetts Commission comments at 8-10; MCI comments at 75; Michigan Commission comments at 19.

[1654] Washington Commission reply at 6.

carrier-of-last-resort and universal service social policy objectives.[1655] The Attorneys General caution the Commission not to classify legitimate contributions to joint and common costs as impermissible implicit universal service subsidies.[1656]

665. Several parties comment on the issue of how universal service funding should be handled during the interim period between the effective date of this order and the effective date of the Commission's order implementing the section 254 universal service requirements in May 1997. AT&T proposes that the Commission adopt a competitively-neutral funding and distribution mechanism.[1657] CompTel proposes that the Commission grant a blanket waiver of incremental cost pricing for exchange access. Under CompTel's plan, pending completion of the section 254 proceeding, the incumbent LECs would continue to provide exchange access pursuant to their intrastate and interstate carrier-to-carrier access charge tariffs. At the conclusion of the section 254 proceeding, the Commission would determine whether the incumbent LECs are entitled to recover any portion of those revenues from competitive carriers and, if so, devise appropriate mechanisms for doing so. CompTel asserts that, by preserving the status quo for exchange access until those issues are fully considered and resolved, the Commission would ensure that the 1996 Act does not cause any unnecessary short-term disruption to carriers or consumers.[1658]

666. The Western Alliance contends that states should have authority to order the recovery of lost contribution through access charges until explicit and competitively neutral support mechanisms are in place.[1659] Similarly, the Massachusetts Commission argues that the states should have authority to include universal service subsidies in the rates for interconnection during this period. The Massachusetts Commission further contends that prohibiting states from exercising this authority will promote inefficient competition and ultimately could result in confiscation claims being filed by incumbent LECs.[1660]

[1655] *See, e.g.*, Alabama Commission comments at 24-25; Bay Springs *et al.* comments at 16; BellSouth comments at 57; Matanuska Tel. comments at 2-3; TDS comments at 20; SBC comments at 89; Western Alliance comments at 6-7; *but see* BellSouth comments at 57 (if the universal service proceeding establishes a federal fund or if the states establish explicit funds, there will be no need for subsidies to be built into interconnection and unbundled network element rates).

[1656] Attorneys General reply at 10-11.

[1657] AT&T comments at 73.

[1658] CompTel comments at 84.

[1659] Western Alliance comments at 6-7.

[1660] Mass. Commission comments at 9-10.

667. Some parties take the position that "play or pay" proposals incorporate implicit subsidies into rates for interconnection and unbundled network elements and are therefore inconsistent with the 1996 Act.[1661] They further argue that such programs violate the 1996 Act because they do not require all telecommunications carriers to contribute on an equitable and nondiscriminatory basis and do not qualify as "specific, predictable and sufficient mechanisms" to preserve and advance universal service.[1662]

668. Other commenters argue, however, that the 1996 Act permits reasonable differences in interconnection rates charged to carriers so long as similarly-situated carriers are treated alike. They maintain that the anti-discrimination provisions of the 1996 Act only prohibit unreasonable discrimination. Thus, they contend that "play or pay" schemes are consistent with the 1996 Act.[1663] Several parties also contend that such schemes are authorized by the reservation of state power to adopt and implement universal service measures in section 254.[1664] Moreover, the New York Commission argues that the section 254(e) requirement that universal service funding must be explicit applies only to the federal Universal Service Fund, which is yet to be established, and not to state initiatives.[1665]

669. Some commenters urge the Commission to address universal service in the section 254 proceeding rather than in the section 251/252 interconnection proceeding.[1666] Other commenters suggest that universal service, access restructure, and interconnection issues should be addressed in a coordinated manner or in a consolidated proceeding.[1667]

670. *Fifth Amendment Issues.* Several incumbent LECs claim that use of a LRIC-based pricing methodology that does not permit recovery of at least joint and common costs and a reasonable

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[1661] *See, e.g.,* Frontier comments at 23; Teleport comments at 48-49; Texas Public Utility Counsel comments at 35-36; WinStar reply at 14 n.20.

[1662] WinStar comments at 40;*see also* Texas Public Utility Counsel comments at 35.

[1663] *See, e.g.,* New York Commission comments at 15-18; NYNEX comments at 91-97.

[1664] NYNEX comments at 95-97; New York Commission reply at 6.

[1665] New York Commission reply at 6.

[1666] *See, e.g.,* Competition Policy Institute comments at 13-14; F. Williamson comments at 8; Texas Public Utility Counsel comments at 36; ALTS reply at 35.

[1667] *See, e.g.,* Ad Hoc Telecommunications Users Committee comments at 35; TDS comments at 20.

profit constitutes unlawful confiscation in violation of the Fifth and Fourteenth Amendments.[1668] Other LECs further argue that, in order to avoid an unconstitutional taking, any pricing rules we adopt must enable them to recover total costs, including historical or embedded costs.[1669] Generally, these parties contend that prices limited by a forward-looking economic cost methodology do not permit an incumbent LEC to remain profitable over time because LRIC fails to recover total costs.[1670] They assert that, if the Commission decides now, long after those costs have been sunk, to bar compensatory returns, it will violate due process and undermine the incumbent LECs' legitimate, investment-backed expectations.[1671] Such interference with legitimate investor expectations, they contend, constitutes an unlawful taking.[1672] GTE contends that Commission adoption of a pure TSLRIC methodology would represent an unconstitutional taking, because it would require use of the incumbent LEC's physical property, thus giving rise to an obligation to provide just compensation.[1673]

671. Other parties, including the Department of Justice and new entrants, contend that using a forward-looking cost-based pricing methodology for setting the rates for interconnection and unbundled elements does not constitute an unlawful taking.[1674] These commenters point out that many state commissions already utilize a forward-looking cost-based pricing methodology.[1675] They also argue that, because forward-looking cost-based rates capture all costs for interconnection and unbundled network elements, including the risk-adjusted cost of capital, such a methodology would not result in an unlawful taking.[1676] These parties further assert that the LECs' takings claims are premature, not

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[1668] *See, e.g.*, GTE comments at 65-71; MECA comments at 42; Puerto Rico Telephone Company reply at 11-12; PacTel comments at 67.

[1669] *See, e.g.*, NYNEX comments at 43-44; PacTel comments at 65-66; SNET comments at 29; Roseville Tel. comments at 6-7.

[1670] *See, e.g.*, Ameritech comments at 62-70; GTE comments at 68-71, reply at 31-32; USTA comments at 39-42.

[1671] *See, e.g.*, GTE comments at 66-71, reply at 31-33; USTA comments at 40-45, reply at 21-25, 32-34.

[1672] *Id.*

[1673] *See* GTE comments at 65-67.

[1674] *See, e.g.*, ALTS reply at 8-11; AT&T comments at 70-71; CompTel reply at 37-40; DoJ reply at 13, 16-19; MCI reply at 18-20.

[1675] *See, e.g.*, AT&T comments at 49-50; Cable & Wireless reply at 24-25; MCI reply at 19. AT&T also notes that when U S West and BellSouth have been new entrants into markets, they have advocated a LRIC approach. AT&T comments at 50-51 n.72.

[1676] *See, e.g.*, Frontier reply at 14; MCI reply at 18-19.

demonstrated with sufficient specificity, and overstate the scope of the constitutional guarantee.[1677] Commenters note that no incumbent LEC has made any effort to demonstrate the actual impact of a LRIC-based pricing methodology on its "financial integrity."[1678] These parties contend that there is no unconstitutional impairment if the shortfall is not sufficient to jeopardize the operating and financial integrity of the utility. Finally, these commenters maintain that there is no constitutional right to a particular rate-setting methodology (*i.e.*, historical cost) and there are no general principles that require every component of an integral whole of a utility service to show a profit.[1679]

(3) Discussion

672. *Overview*. Having concluded in Section II.D., above, that we have the requisite legal authority and that we should establish national pricing rules, we conclude here that prices for inter-connection and unbundled elements pursuant to sections 251(c)(2), 251(c)(3), and 252(d)(1), should be set at forward-looking long-run economic cost. In practice, this will mean that prices are based on the TSLRIC of the network element, which we will call Total Element Long Run Incremental Cost (TELRIC), and will include a reasonable allocation of forward-looking joint and common costs. The 1996 Act encourages competition by removing barriers to entry and providing an opportunity for potential new entrants to purchase unbundled incumbent LEC network elements to compete efficiently to provide local exchange services. We believe that the prices that potential entrants pay for these elements should reflect forward-looking economic costs in order to encourage efficient levels of investment and entry.

673. In this section, we describe this forward-looking, cost-based pricing standard in detail. First, we define the terms we are using, explain how the methodology we are adopting differs from other costing approaches, and describe how it should be implemented. In particular, we explain that the price of a network element should include the forward-looking costs that can be attributed directly to the provision of services using that element, which includes a reasonable return on investment (*i.e.*, "profit"), plus a reasonable share of the forward-looking joint and common costs. Second, we address potential cost measures that must not be included in a TELRIC analysis, such as embedded (or historical) costs, opportunity costs, or universal service subsidies. Finally, we refute arguments that this methodology would violate the incumbent LECs' rights under the Fifth Amendment.

[1677] *See, e.g.*, DoJ reply at 16-18.

[1678] DoJ reply at 16-18; MCI reply at 18.

[1679] *See, e.g.*, Jones Intercable reply at 16-17.

(a) Total Element Long Run Incremental Cost

674. *Definitions of Terms.* In light of the various possible definitions of a number of the critical economic terms used in this context, we begin by defining terms as we use them in this Order. Specifically, we provide definitions for the following terms: "incremental cost;" "economic cost;" "embedded or accounting cost;" "joint cost;" "common cost;" "long run incremental cost;" "total service long run incremental cost;" "total element long run incremental cost." In addition to defining these terms, we explain the economic rationale behind the concepts.

675. Incremental costs are the additional costs (usually expressed as a cost per unit) that a firm will incur as a result of expanding the output of a good or service by producing an additional quantity of the good or service.[1680] Incremental costs are forward-looking in the sense that these costs are incurred as the output level changes by a given increment.[1681] The costs that are considered incremental will vary greatly depending on the size of the increment. For example, the incremental cost of carrying an additional call from a residence that is already connected to the network to its end office is virtually zero. The incremental cost of connecting a new residence to its end office, however, is the cost of the loop. Forward-looking incremental costs, plus a portion of the forward-looking joint and common costs, are sometimes referred to as "economic costs." Embedded or accounting costs are costs that firms incurred in the past for providing a good or service and are recorded as past operating expenses and depreciation. Due to changes in input prices and technologies, incremental costs may differ from embedded costs of that same increment. In competitive markets, the price of a good or service will tend towards its long-run incremental cost.

676. Certain types of costs arise from the production of multiple products or services. We use the term "joint costs" to refer to costs incurred when two or more outputs are produced in fixed proportion by the same production process (*i.e.*, when one product is produced, a second product is generated by the same production process at no additional cost). The term "common costs" refers to costs that are incurred in connection with the production of multiple products or services, and remains unchanged as the relative proportion of those products or services varies (*e.g.*, the salaries of corporate managers). Such costs may be common to all services provided by the firm or common to only a subset of those services or elements. If a cost is common with respect to a subset of services or elements, for example, a firm avoids that cost only by not providing each and every service or element in the subset. For the purpose of our discussion, we refer to joint and common costs as simply common costs unless the distinction is relevant in a particular context.

[1680] *See* 1 Alfred Kahn *The Economics of Regulation* 66 (1971); William Baumol and Gregory Sidak *Toward Competition in Local Telephony* 57 (1994).

[1681] William Baumol and Gregory Sidak, *Toward Competition in Local Telephony* 57 (1994).

677. The term "long run," in the context of "long run incremental cost," refers to a period long enough so that all of a firm's costs become variable or avoidable.[1682] The term "total service," in the context of TSLRIC, indicates that the relevant increment is the entire quantity of the service that a firm produces, rather than just a marginal increment over and above a given level of production. Depending on what services are the subject of a study, TSLRIC may be for a single service or a class of similar services. TSLRIC includes the incremental costs of dedicated facilities and operations that are used by only the service in question. TSLRIC also includes the incremental costs of shared facilities and operations that are used by that service as well as other services.

678. While we are adopting a version of the methodology commonly referred to as TSLRIC as the basis for pricing interconnection and unbundled elements, we are coining the term "total element long run incremental cost" (TELRIC) to describe our version of this methodology. The incumbent LEC offerings to be priced using this methodology generally will be "network elements," rather than "telecommunications services," as defined by the 1996 Act.[1683] More fundamentally, we believe that TELRIC-based pricing of discrete network elements or facilities, such as local loops and switching, is likely to be much more economically rational than TSLRIC-based pricing of conventional services, such as interstate access service and local residential or business exchange service. As discussed in greater detail below, separate telecommunications services are typically provided over shared network facilities, the costs of which may be joint or common with respect to some services. The costs of local loops and their associated line cards in local switches, for example, are common with respect to interstate access service and local exchange service, because once these facilities are installed to provide one service they are able to provide the other at no additional cost. By contrast, the network elements, as we have defined them,[1684] largely correspond to distinct network facilities. Therefore, the amount of joint and common costs that must be allocated among separate offerings is likely to be much smaller using a TELRIC methodology rather than a TSLRIC approach that measures the costs of conventional services. Because it is difficult for regulators to determine an economically-optimal allocation of any such joint and common costs, we believe that pricing elements, defined as facilities with associated features and functions, is more reliable from the standpoint of economic efficiency than pricing services that use shared network facilities.

679. *Description of TELRIC-Based Pricing Methodology.* Adopting a pricing methodology based on forward-looking, economic costs best replicates, to the extent possible, the conditions of a

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[1682] *See, e.g.*, William Baumol, *Economic Theory and Operations Analysis* 290 (4th ed. 1977) ("The very long run is a period so long that all of the firm's present contracts will have run out, its present plant and equipment will have been worn out or rendered obsolete and will therefore need replacement, etc.").

[1683] 47 U.S.C. §§ 3(29), 3(46).

[1684] *See supra* Section V.

competitive market. In addition, a forward-looking cost methodology reduces the ability of an incumbent LEC to engage in anti-competitive behavior. Congress recognized in the 1996 Act that access to the incumbent LECs' bottleneck facilities is critical to making meaningful competition possible. As a result of the availability to competitors of the incumbent LEC's unbundled elements at their economic cost, consumers will be able to reap the benefits of the incumbent LECs' economies of scale and scope, as well as the benefits of competition. Because a pricing methodology based on forward-looking costs simulates the conditions in a competitive marketplace, it allows the requesting carrier to produce efficiently and to compete effectively, which should drive retail prices to their competitive levels. We believe that our adoption of a forward-looking cost-based pricing methodology should facilitate competition on a reasonable and efficient basis by all firms in the industry by establishing prices for interconnection and unbundled elements based on costs similar to those incurred by the incumbents, which may be expected to reduce the regulatory burdens and economic impact of our decision for many parties, including both small entities seeking to enter the local exchange markets and small incumbent LECs.[1685]

680. We note that incumbent LECs have greater access to the cost information necessary to calculate the incremental cost of the unbundled elements of the network. Given this asymmetric access to cost data, we find that incumbent LECs must prove to the state commission the nature and magnitude of any forward-looking cost that it seeks to recover in the prices of interconnection and unbundled network elements.

681. Some parties express concern that the information required to compute prices based on forward-looking costs is inherently so hypothetical as to be of little or no practical value.[1686] Based on the record before us, we disagree. A number of states, which ultimately will have to review forward-looking cost studies in carrying out their duties under section 252, either have already implemented forward-looking, incremental costing methodologies to set prices for interconnection and unbundled network elements or support the use of such an approach.[1687] While these states have applied somewhat different definitions of, and approaches to setting prices developed on, an incremental cost methodology, the record demonstrates that such approaches are practical and implementable.

[1685] *See* Regulatory Flexibility Act, 5 U.S.C. §§ 601 *et seq.*

[1686] *See, e.g.*, GVNW comments at 35; NYNEX comments at 54; USTA comments at 47-50.

[1687] *See, e.g.*, Louisiana Commission comments at 4; Texas Commission comments at 22; Washington Commission comments at 25; California Commission comments at 28-29; Colorado Commission comments at 35; Maryland Commission comments at 7-8; Oklahoma Commission comments at Attachment A (Oklahoma Corporation Commission Telephone Rules, OAC 165:55) pp. 10-11. The Wyoming and Florida commissions have indicated their support for such an approach. *See* Wyoming Commission comments at 27 (supporting uniform use of TSLRIC costing methods so long as details left to states); *see also* Florida Commission comments at 26 (TSLRIC may be appropriate to set cost standard for a price floor).

682. We conclude that, under a TELRIC methodology, incumbent LECs' prices for interconnection and unbundled network elements shall recover the forward-looking costs directly attributable to the specified element, as well as a reasonable allocation of forward-looking common costs. Per-unit costs shall be derived from total costs using reasonably accurate "fill factors" (estimates of the proportion of a facility that will be "filled" with network usage); that is, the per-unit costs associated with a particular element must be derived by dividing the total cost associated with the element by a reasonable projection of the actual total usage of the element. Directly attributable forward-looking costs include the incremental costs of facilities and operations that are dedicated to the element. Such costs typically include the investment costs and expenses related to primary plant used to provide that element. Directly attributable forward-looking costs also include the incremental costs of shared facilities and operations. Those costs shall be attributed to specific elements to the greatest extent possible.[1688] For example, the costs of conduits shared by both transport and local loops, and the costs of central office facilities shared by both local switching and tandem switching, shall be attributed to specific elements in reasonable proportions. More broadly, certain shared costs that have conventionally been treated as common costs (or overheads) shall be attributed directly to the individual elements to the greatest extent possible. The forward-looking costs directly attributable to local loops, for example, shall include not only the cost of the installed copper wire and telephone poles but also the cost of payroll and other back office operations relating to the line technicians, in addition to other attributable costs.

683. Forward-looking cost methodologies, like TELRIC, are intended to consider the costs that a carrier would incur in the future. Thus, a question arises whether costs should be computed based on the least-cost, most efficient network configuration and technology currently available, or whether forward-looking cost should be computed based on incumbent LECs' existing network infrastructures, taking into account changes in depreciation and inflation. The record indicates three general approaches to this issue. Under the first approach, the forward-looking economic cost for interconnection and unbundled elements would be based on the most efficient network architecture, sizing, technology, and operating decisions that are operationally feasible and currently available to the industry. Prices based on the least-cost, most efficient network design and technology replicate conditions in a highly competitive marketplace by not basing prices on existing network design and investments unless they represent the least-cost systems available for purchase. This approach, however, may discourage facilities-based competition by new entrants because new entrants can use the incumbent LEC's existing network based on the cost of a hypothetical least-cost, most efficient network.

[1688] *Compare Telephone Company-Cable Television Cross-Ownership Rules*, CC Docket No. 87-266, Memorandum Opinion and Order on Reconsideration and Third Further Notice of Proposed Rulemaking, 10 FCC Rcd 244, 345-46 (1994).

684. Under the second approach, the cost of interconnection and unbundled network elements would be based on existing network design and technology that are currently in operation.[1689] Because this approach is not based on a hypothetical network in the short run, incumbent LECs could recover costs based on their existing operations, and prices for interconnection and unbundled elements that reflect inefficient or obsolete network design and technology. This is essentially an embedded cost methodology.

685. Under the third approach, prices for interconnection and access to unbundled elements would be developed from a forward-looking economic cost methodology based on the most efficient technology deployed in the incumbent LEC's current wire center locations. This approach mitigates incumbent LECs' concerns that a forward-looking pricing methodology ignores existing network design, while basing prices on efficient, new technology that is compatible with the existing infrastructure. This benchmark of forward-looking cost and existing network design most closely represents the incremental costs that incumbents actually expect to incur in making network elements available to new entrants. Moreover, this approach encourages facilities-based competition to the extent that new entrants, by designing more efficient network configurations, are able to provide the service at a lower cost than the incumbent LEC. We, therefore, conclude that the forward-looking pricing methodology for interconnection and unbundled network elements should be based on costs that assume that wire centers will be placed at the incumbent LEC's current wire center locations, but that the reconstructed local network will employ the most efficient technology for reasonably foreseeable capacity requirements.

686. We agree with USTA, Bell Atlantic, and BellSouth that, as a theoretical matter, the combination of significant sunk investment, declining technology costs, and competitive entry may increase the depreciation costs and cost of capital of incumbent LECs. We do not agree, however, that TSLRIC does not or cannot account for risks that an incumbent LEC incurs because it has sunk investments in facilities. On the contrary, properly designed depreciation schedules should account for expected declines in the value of capital goods. Both AT&T and MCI appear to agree with this proposition.[1690] For example, AT&T states, "[i]n order to estimate TSLRIC, one must perform a discounted cash flow analysis of the future costs associated with the decision to invest . . . . One-time costs associated with the acquisition of capital goods are amortized over the economic life of the assets using the user cost of capital . . . , which requires accounting for both expected capital good price

[1689] *See, e.g.*, BellSouth reply at 37; Roseville Tel. reply at 8; USTA reply at 18-19.

[1690] *See* Letter from Leonard S. Sawicki, Director, FCC Affairs, MCI Telecommunications Corp. to William F. Caton, Acting Secretary, FCC, July 24, 1996 at Attachment (Depreciation and Capital Recovery Issues: A Response to Professor Hausman), pp.1-3; *see also* Letter from Richard N. Clarke, AT&T, to William F. Caton, Acting Secretary, FCC, July 19, 1996 at Attachment (Capital Recovery Issues in TSLRIC Pricing: Response to Professor Jerry A. Hausman).

changes and economic depreciation."[1691] Moreover, we are confident that parties to an arbitration with TELRIC studies can propose specific depreciation rate adjustments that reflect expected asset values over time.

687. As noted, we also agree that, as a matter of theory, an increase in risk due to entry into the market for local exchange service can increase a LEC's cost of capital. We believe that this increased risk can be partially mitigated, however, by offering term discounts, since long-term contracts can minimize the risk of stranded investment. In addition, growth in overall market demand can increase the potential of the incumbent LEC to use some of its displaced facilities for other purposes. Overall, we think that these factors can and should be captured in any LRIC model and therefore we do not agree that this requires a departure from the general principle of forward-looking cost-based pricing for network elements.

688. We are not persuaded by USTA's argument that forward looking methodologies fail to adjust the cost of capital to reflect the risks associated with irreversible investments and that they are "biased downward by a factor of three." First, USTA's argument unrealistically assumes that competitive entry would be instantaneous. The more reasonable assumption of entry occurring over time will reduce the costs associated with sunk investment. Second, we find it unlikely that investment in communications equipment is entirely irreversible or that such equipment would become valueless once facilities-based competition begins. In a growing market, there most likely would be demand for at least some embedded telecommunications equipment, which would therefore retain its value. Third, contractual arrangements between the new entrant and the incumbent that specifically address USTA's concerns and protect incumbent's investments during transition can be established.

689. Finally we are not persuaded that the use by firms of hurdle rates that exceed the market cost of capital is convincing evidence that sunk investments significantly increase a firm's cost of capital. An alternative explanation for this phenomenon is that the process that firms use to choose among investment projects results in overestimates of their returns. Firms therefore use hurdle rates in excess of the market cost of capital to account for these overestimates.[1692]

[1691] Letter from Richard N. Clarke, AT&T, to William F. Caton, Acting Secretary, FCC, July 19, 1996 at Attachment (Capital Recovery Issues in TSLRIC Pricing: Response to Professor Jerry A. Hausman), p.8.

[1692] *See* Richard Thaler, *The Winner's Curse*, 2 J. Econ. Perspectives 201 (1988); Keith Brown, *Note on the Apparent Bias of Net Revenue Estimates for Capital Investment Projects*, 29 J. Fin. 1215-16 (1974); Daniel Kahneman and Daniel Lovallo, *Timid Choices, Bold Forecasts*, 39 Management Science 17, 28 (1993). In addition, we note that Hausman's arguments that TSLRIC method underestimate the true cost of an element apply only to the capital expense associated with an element and not to the operating expense.

690. *Summary of TELRIC Methodology*. The following summarizes our conclusions regarding setting prices of interconnection and access to unbundled network elements based on the TELRIC methodology for such elements. The increment that forms the basis for a TELRIC study shall be the entire quantity of the network element provided. As we have previously stated, all costs associated with the providing the element shall be included in the incremental cost. Only forward-looking, incremental costs shall be included in a TELRIC study. Costs must be based on the incumbent LEC's existing wire center locations and most efficient technology available.

691. Any function necessary to produce a network element must have an associated cost. The study must explain with specificity why and how specific functions are necessary to provide network elements and how the associated costs were developed. Only those costs that are incurred in the provision of the network elements in the long run shall be directly attributable to those elements. Costs must be attributed on a cost-causative basis. Costs are causally-related to the network element being provided if the costs are incurred as a direct result of providing the network elements, or can be avoided, in the long run, when the company ceases to provide them. Thus, for example, the forward-looking costs of capital (debt and equity) needed to support investments required to produce a given element shall be included in the forward-looking direct cost of that element. Directly attributable costs shall include costs such as certain administrative expenses, which have traditionally been viewed as common costs, if these costs vary with the provision of network elements. Retailing costs, such as marketing or consumer billing costs associated with retail services, are not attributable to the production of network elements that are offered to interconnecting carriers and must not be included in the forward-looking direct cost of an element.

692. In a TELRIC methodology, the "long run" used shall be a period long enough that all costs are treated as variable and avoidable.[1693] This "long run" approach ensures that rates recover not only the operating costs that vary in the short run, but also fixed investment costs that, while not variable in the short term, are necessary inputs directly attributable to providing the element.

693. States may review a TELRIC economic cost study in the context of a particular arbitration proceeding, or they may conduct such studies in a rulemaking and apply the results in various arbitrations involving incumbent LECs. In the latter case, states must replace any interim rates[1694] set in arbitration proceedings with the permanent rate resulting from the separate rulemaking. This permanent rate will take effect at or about the time of the conclusion of the separate rulemaking and will apply from that time forward.

[1693] *See* 1 Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions* 70-71 (1988).

[1694] *See infra*, Section VII.C., discussing default proxy price ceilings and ranges.

694. *Forward-Looking Common Costs*. Certain common costs are incurred in the provision of network elements. As discussed above, some of these costs are common to only a subset of the elements or services provided by incumbent LECs. Such costs shall be allocated to that subset, and should then be allocated among the individual elements or services in that subset, to the greatest possible extent. For example, shared maintenance facilities and vehicles should be allocated only to the elements that benefit from those facilities and vehicles. Common costs also include costs incurred by the firm's operations as a whole, that are common to all services and elements (*e.g.*, salaries of executives involved in overseeing all activities of the business), although for the purpose of pricing inter-connection and access to unbundled elements, which are intermediate products offered to competing carriers, the relevant common costs do not include billing, marketing, and other costs attributable to the provision of retail service.[1695] Given these common costs, setting the price of each discrete network element based solely on the forward-looking incremental costs directly attributable to the production of individual elements will not recover the total forward-looking costs of operating the wholesale network.[1696] Because forward-looking common costs are consistent with our forward-looking, economic cost paradigm, a reasonable measure of such costs shall be included in the prices for interconnection and access to network elements.

695. The incumbent LECs generally argue that common costs are quite significant,[1697] while several other parties maintain that these amounts are minimal.[1698] Because the unbundled network elements correspond, to a great extent, to discrete network facilities, and have different operating characteristics, we expect that common costs should be smaller than the common costs associated with the long-run incremental cost of a service. We expect that many facility costs that may be common with respect to the individual services provided by the facilities can be directly attributed to the facilities when offered as unbundled network elements. Moreover, defining the network elements at a relatively high level of aggregation, as we have done,[1699] should also reduce the magnitude of the common costs. A properly conducted TELRIC methodology will attribute costs to specific elements to the greatest possible extent, which will reduce the common costs. Nevertheless, there will remain some common costs that must be allocated among network elements and interconnection services. For example, at the sub-element level of study (*e.g.*, identifying the respective costs of 2-wire loops, 4-wire loops,

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[1695] *See infra*, Section VIII.B., describing "avoided costs" in the resale context.

[1696] *See, e.g.*, AT&T comments at 61-66; Teleport comments at 47-48.

[1697] *See, e.g.*, PacTel reply at 27-28;*see also* Cincinnati Bell reply at 10; USTA comments at Attachment 1 (Affidavit of Jerry A. Hausman), p.4 n.1.

[1698] *See, e.g.*, Competition Policy Institute comments at 19; MCI comments at 66; Texas Public Utility Counsel comments at 24.

[1699] *See supra*, Section V., discussing unbundling requirements.

ISDN loops, and so on), common costs may be a significant proportion of all the costs that must be recovered from sub-elements. Given the likely asymmetry of information regarding network costs, we conclude that, in the arbitration process, incumbent LECs shall have the burden to prove the specific nature and magnitude of these forward-looking common costs.

696. We conclude that forward-looking common costs shall be allocated among elements and services in a reasonable manner, consistent with the pro-competitive goals of the 1996 Act. One reasonable allocation method would be to allocate common costs using a fixed allocator, such as a percentage markup over the directly attributable forward-looking costs. We conclude that a second reasonable allocation method would allocate only a relatively small share of common costs to certain critical network elements, such as the local loop and collocation, that are most difficult for entrants to replicate promptly (*i.e.*, bottleneck facilities). Allocation of common costs on this basis ensures that the prices of network elements that are least likely to be subject to competition are not artificially inflated by a large allocation of common costs. On the other hand, certain other allocation methods would not be reasonable. For example, we conclude that an allocation methodology that relies exclusively on allocating common costs in inverse proportion to the sensitivity of demand for various network elements and services may not be used.[1700] We conclude that such an allocation could unreasonably limit the extent of entry into local exchange markets by allocating more costs to, and thus raising the prices of, the most critical bottleneck inputs, the demand for which tends to be relatively inelastic. Such an allocation of these costs would undermine the pro-competitive objectives of the 1996 Act.

697. We believe that our treatment of forward-looking common costs will minimize regulatory burdens and economic impact for all parties involved in arbitration of agreements for interconnection and access to unbundled elements, and will advance the 1996 Act's pro-competitive objectives for local exchange and exchange access markets.[1701] In our decisionmaking, we have considered the economic impact of our rules in this section on small incumbent LECs. For example, although opposed to the use of a forward-looking, economic cost methodology, small incumbent LECs favor the recovery of joint and common costs in the event the Commission adopts forward-looking cost methodology. We are adopting such an approach. Moreover, the cost-based pricing methodology that we are adopting is designed to permit incumbent LECs to recover their economic costs of providing interconnection and unbundled elements, which may minimize the economic impact of our decisions on incumbent LECs, including small incumbent LECs. We also note that certain small incumbent LECs are

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[1700] *See* Frank P. Ramsey, *A Contribution to the Theory of Taxation*, 37 Econ. J. 47 (1927); *see generally* Kenneth E. Train, *Optimal Regulation: The Economic Theory of Natural Monopoly* 15-40 (1992) (discussing efficiency properties of Ramsey prices); Bridger M. Mitchell & Ingo Vogelsang, *Telecommunications Pricing: Theory and Practice* 43-61 (1991). The sensitivity of demand is measured by the elasticity of demand, which is defined as the percentage change in the quantity of a service demanded for a one per cent change in price.

[1701] *See* Regulatory Flexibility Act, 5 U.S.C. §§ 601 *et seq.*

not subject to our rules under section 251(f)(1) of the 1996 Act, unless otherwise determined by a state commission, and certain other small incumbent LECs may seek relief from their state commissions from our rules under section 251(f)(2) of the 1996 Act.[1702]

698. We further conclude that, for the aggregate of all unbundled network elements, incumbent LECs must be given a reasonable opportunity to recover their forward-looking common costs attributable to operating the wholesale network. In no instance should prices exceed the stand-alone cost for a specific element, and in most cases they should be below stand-alone costs. Stand-alone costs are defined as the forward-looking cost that an efficient entrant would incur in providing a given element or any combination of elements. No price higher than stand-alone cost could be sustained in a market from which entry barriers were completely absent. Where there are few common costs, there is likely to be only a minimal difference between the forward-looking costs that are directly attributable to the particular element, which excludes these costs, and stand-alone cost, which includes all of them. Network elements should not, however, be priced at levels that would enable the incumbent LEC to recover the same common costs multiple times from different elements. Any multiple recovery would be unreasonable and thus in violation of the statutory standard. Further, we note that the sum of the direct costs and the forward-looking common costs of all elements will likely differ from the incumbent LEC's historical, fully distributed costs.

699. *Reasonable Return on Investment and "Profit."* Section 252(d)(1) states that rates for interconnection and access to unbundled elements "may include a reasonable profit."[1703] We find that the TELRIC pricing methodology we are adopting provides for such a reasonable profit and thus no additional profit is justified under the statutory language. We note there are two types of profit. First, in plain English, profit is defined as "the excess of returns over expenditure in a transaction or a series of transactions."[1704] This is also known as a "normal" profit, which is the total revenue required to cover all of the costs of a firm, including its opportunity costs.[1705] Second, there is "economic" profit, which is any return in excess of normal profit.[1706] Thus, for example, if the normal return in an industry is 10 percent and a firm earns a return of 14 percent, the economic profit for that firm is 4 percent. Economic is also referred to as "supranormal" profit. We conclude that the definition of "normal" profit is embodied in "reasonable profit" under Section 252(d)(1).

[1702] 47 U.S.C. § 251(f).

[1703] 47 U.S.C. § 252(d)(1).

[1704] *Webster's New Collegiate Dictionary* 931 (10th ed. 1994).

[1705] *See* David W. Pearce, *The MIT Dictionary of Modern Economics* (1994) at 310.

[1706] *Id*. at 415.

700. The concept of normal profit is embodied in forward-looking costs because the forward-looking cost of capital, *i.e.*, the cost of obtaining debt and equity financing, is one of the forward-looking costs of providing the network elements. This forward-looking cost of capital is equal to a normal profit. We conclude that allowing greater than normal profits would not be "reasonable" under sections 251(c) and 252(d)(1).[1707] Thus, contrary to the arguments put forth by several incumbent LECs, we find that adding an additional measure of profit to the risk-adjusted cost of capital[1708] in setting the prices for interconnection and access to unbundled elements would violate the requirements of sections 251(c) and 252(d)(1) of the 1996 Act.

701. Possible accounting losses from the sale of interconnection and unbundled network elements using a reasonable forward-looking cost-based methodology do not necessarily indicate that incumbent LECs are being denied a "reasonable profit" under the statute. The use of a forward-looking, economic, cost-based pricing methodology, including a reasonable allocation of legitimate joint and common costs, will permit incumbent LECs the opportunity to earn a reasonable return on their investment in network elements. Finally, contrary to PacTel's argument, and as discussed below in

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[1707] We note that our interpretation is consistent with existing Supreme Court precedent concerning what constitutes a reasonable rate of return for a regulated public utility. For example, in *Bluefield Water Works*, the Court stated:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures.

Bluefield Water Works & Improvement Co. v. Public Service Comm'n of West Virginia, 262 U.S. 679, 692-93 (1923). Similarly, in *FPC v. Hope Natural Gas*, the Court stated:

> . . . it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock . . . By that standard the return to the equity owner should be commensurate with risks on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.

Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591, 603 (1994) (*Hope Natural Gas*). *Cf.*, Charles F. Phillips, Jr., *The Economics of Regulation* 260 (Rev. ed. 1965) (". . . a regulated company must be afforded the opportunity not only of assuring its financial integrity so that it can maintain its credit standing and attract additional capital as needed, but also for earnings comparable to those of other companies having corresponding risks.").

[1708] *See supra*, this Section, for a discussion of risk-adjusted cost of capital.

detail, we conclude that our forward-looking cost-based pricing methodology is consistent with the Fifth Amendment and is not confiscatory.

702. Based on the current record, we conclude that the currently authorized rate of return at the federal or state level is a reasonable starting point for TELRIC calculations, and incumbent LECs bear the burden of demonstrating with specificity that the business risks that they face in providing unbundled network elements and interconnection services would justify a different risk-adjusted cost of capital or depreciation rate. These elements generally are bottleneck, monopoly services that do not now face significant competition. We recognize that incumbent LECs are likely to face increased risks given the overall increases in competition in this industry, which generally might warrant an increased cost of capital, but note that, earlier this year, we instituted a preliminary inquiry as to whether the currently authorized federal 11.25 percent rate of return is too high given the current marketplace cost of equity and debt.[1709] On the basis of the current record, we decline to engage in a time-consuming examination to determine a new rate of return, which may well require a detailed proceeding. States may adjust the cost of capital if a party demonstrates to a state commission that either a higher or lower level of cost of capital is warranted, without that commission conducting a "rate-of-return or other rate based proceeding."[1710] We note that the risk-adjusted cost of capital need not be uniform for all elements. We intend to re-examine the issue of the appropriate risk-adjusted cost of capital on an ongoing basis, particularly in light of the state commissions' experiences in addressing this issue in specific situations.

703. We disagree with the conclusion that, when there are mostly sunk costs, forward-looking economic costs should not be the basis for pricing interconnection elements. The TELRIC of an element has three components, the operating expenses, the depreciation cost,[1711] and the appropriate risk-adjusted cost of capital. We conclude that an appropriate calculation of TELRIC will include a depreciation rate that reflects the true changes in economic value of an asset and a cost of capital that appropriately reflects the risks incurred by an investor. Thus, even in the presence of sunk costs, TELRIC-based prices are an appropriate pricing methodology.

[1709] *See Common Carrier Bureau Sets Pleading Schedule in Preliminary Rate of Return Inquiry*, Public Notice, 11 FCC Rcd 3651 (Com. Car. Bur. 1996).

[1710] 47 U.S.C. § 252(d)(1)(A)(i).

[1711] Depreciation is the method of recognizing as an expense the cost of a capital investment. Properly calculated economic depreciation is a periodic reduction in the book value of an asset that makes the book value equal to its economic or market value.

(b) Cost Measures Not Included in Forward-Looking Cost Methodology

704. *Embedded Costs.* We read section 252(d)(1)(A)(i) to prohibit states from conducting traditional rate-of-return or other rate-based proceedings to determine rates for interconnection and access to unbundled network elements. We find that the parenthetical, "(determined without reference to a rate-of-return or other rate-based proceeding)),"[1712] does not further define the type of costs that may be considered, but rather specifies a type of proceeding that may not be employed to determine the cost of interconnection and unbundled network elements. The legislative history demonstrates that Congress was eager to set in motion expeditiously the development of local competition and intended to avoid imposing the costs and administrative burdens associated with a traditional rate case. Prior to the joint conference, the Senate version of the 1996 Act contained the parenthetical language.[1713] In addition, the Senate version of the 1996 Act eliminated rate-of-return regulation,[1714] as did the House version.[1715] Conferees removed the provisions eliminating rate-of-return regulation, but retained the parenthetical.

705. Section 252(d)(1)(A)(i) does not specify whether historical or embedded costs should be considered or whether only forward-looking costs should be considered in setting arbitrated rates. We are not persuaded by incumbent LEC arguments that prices for interconnection and unbundled network elements must or should include any difference between the embedded costs they have incurred to provide those elements and their current economic costs. Neither a methodology that establishes the prices for interconnection and access to network elements directly on the costs reflected in the regulated books of account, nor a price based on forward looking costs plus an additional amount reflecting embedded costs, would be consistent with the approach we are adopting. The substantial weight of economic commentary in the record suggests that an "embedded cost"-based pricing methodology would be pro-competitor -- in this case the incumbent LEC -- rather than pro-competition.[1716] We therefore decline to adopt embedded

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[1712] 47 U.S.C. § 252(d)(1)(A)(i).

[1713] S. 652, 104th Cong., 1st Sess. § 251(d)(6)(A) (1995) ("the charge (A) shall be (i) based on the cost (determined without reference to a rate-of-return or other rate-based proceeding) of providing the unbundled element . . . .").

[1714] *Id*. at § 301(a)(3) ("Rate of Return Regulation Eliminated -- (A) In instituting the price flexibility required under paragraph (1) the Commission and the States shall establish alternative forms of regulation for Tier 1 telecommunications carriers that do not include regulation of the rate of return earned by such carrier . . . .").

[1715] H.R. 1555, 104th Cong., 1st Sess. § 248(b) (1995) ("Abolition of Rate-of-Return Regulation -- Notwithstanding any other provision of law, to the extent that a carrier has complied with sections 242 and 244 of this part, the Commission, with respect to rates for interstate or foreign communications, and State commissions, with respect to rates for intrastate communications, shall not require rate-of-return regulation.").

[1716] *See, e.g.*, Ad Hoc Telecommunications Users' Committee reply at Appendix A (Interconnection Pricing Standards for Monopoly Rate Elements in a Potentially Competitive Local Telecommunications Market), p.4; ALTS comments

costs as the appropriate basis of setting prices for interconnection and access to unbundled elements. Rather, we reiterate that the prices for the interconnection and network elements critical to the development of a competitive local exchange should be based on the pro-competition, forward-looking, economic costs of those elements, which may be higher or lower than historical embedded costs. Such pricing policies will best ensure the efficient investment decisions and competitive entry contemplated by the 1996 Act, which should minimize the regulatory burdens and economic impact of our decisions on small entities.[1717]

706. Incumbent LECs contend generally that, in order to ensure they will recover their total investment costs and earn a profit, they must recover embedded costs. These costs, they argue, were incurred under federal and regulatory oversight and therefore should be recoverable.[1718] We are not convinced by the incumbent LECs' principal arguments for recognizing embedded cost in setting section 251 pricing rules. Even if the incumbent LECs' contention is correct, increasing the rates for inter-connection and unbundled elements offered to competitors would interfere with the development of efficient competition, and is not the proper remedy for any past under-depreciation. Moreover, contrary to assertions by some incumbent LECs, regulation does not and should not guarantee full recovery of their embedded costs. Such a guarantee would exceed the assurances that we or the states have provided in the past.[1719] We have considered the economic impact of precluding recovery of small incumbent LECs' embedded costs.[1720] We do not believe that basing the prices of interconnection and unbundled elements on an incumbent LEC's embedded costs would advance the pro-competitive goals of the statute. We also note that certain small incumbent LECs are not subject to our rules under section 251(f)(1) of the 1996 Act, unless otherwise determined by a state commission, and certain other small incumbent LECs may seek relief from their state commissions from our rules under section 251(f)(2) of the 1996 Act.[1721]

707. We acknowledge that some incumbent LECs may have incurred certain embedded costs reasonably before the passage of the 1996 Act, based on different regulatory regimes. Some incumbent LECs may assert that they have made certain historical investments required by regulators that they have

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at Attachment B (Competitive Pricing of Interconnection, Unbundled Elements, and Collocation), pp.28-29; AT&T reply at Appendix B (Reply Affidavit of William J. Baumol, Janusz A. Ordover, and Robert D. Willig), pp.3-5; Competition Policy Institute comments at 18-19; DJ comments at 30-31.

[1717] *See* Regulatory Flexibility Act, 5 U.S.C. §§ 601 *et seq.*

[1718] *See, e.g.*, Ameritech reply at 31; BellSouth comments at 57; Lincoln Tel. comments at 16-17.

[1719] *See In the Matter of the Applications of Pacific Bell*, Order and Authorization, 10 FCC Rcd 12448, 12502-12503 (1995).

[1720] *See* Regulatory Flexibility Act, 5 U.S.C. §§ 601 *et seq.*

[1721] 47 U.S.C. § 251(f).

been denied a reasonable opportunity to recover in the past and that the incumbent LECs may no longer have a reasonable opportunity to recover in the new environment of the 1996 Act. The record before us, however, does not support the conclusion that significant residual embedded costs will necessarily result from the availability of network elements at economic costs. To the extent that any such residual consists of costs of meeting universal service obligations, the recovery of such costs can and should be considered in our ongoing universal service proceeding.[1722] To the extent a significant residual exists within the interstate jurisdiction that does not fall within the ambit of section 254, we intend that to address that issue in our upcoming proceeding on access reform.

708. *Opportunity Cost -- Efficient Component Pricing Rule.* A number of incumbent LECs advocate using the "efficient component pricing rule" (ECPR) to set the prices that incumbent LECs charge new entrants for inputs required to produce the same retail services the incumbent produces. Under the ECPR, the price of an input should be equal to the incremental cost of the input plus the opportunity cost that the incumbent carrier incurs when the new entrant provides the services instead of the incumbent. The opportunity cost, which is computed as revenues less all incremental costs, represents both profit and contribution to common costs of the incumbent, given the existing retail prices of the services being sold.

709. We conclude that ECPR is an improper method for setting prices of interconnection and unbundled network elements because the existing retail prices that would be used to compute incremental opportunity costs under ECPR are not cost-based. Moreover, the ECPR does not provide any mechanism for moving prices towards competitive levels; it simply takes prices as given. The record indicates that both incumbents and new entrants agree that retail prices are not based on costs. Incumbents generally argue that local residential retail prices are below costs while new entrants contend that they exceed competitive levels.[1723] In either case, application of ECPR would result in input prices that would be either higher or lower than those which would be generated in a competitive market and would not lead to efficient retail pricing.

710. In markets where retail prices exceed competitive levels, entry would take place if network element prices were set at efficient competitive levels. The ECPR, however, will serve to discourage competition in these very markets because it relies on the prevailing retail price in setting the price which new entrants pay the incumbent for inputs. While ECPR establishes conditions for efficient entry given existing retail prices, as its advocates contend, the ECPR provides no mechanism that will force retail prices to their competitive levels. We do not believe that Congress envisioned a pricing methodology for interconnection and network elelments that would insulate incumbent LECs' retail prices from competition. Instead, Congress specifically determined that input prices should be based on costs because this would

[1722] *See Universal Service*NPRM at para. 32.

[1723] *See, e.g.*, Ameritech comments at 62.

foster competition in the retail market. Therefore, we reject the use of ECPR for establishing prices for interconnection and unbundled elements.

711. As discussed above, the record in this docket shows that end user prices are not cost-based. In *Open Video Systems*, in contrast, we did not find that there would be a problem with the determination of end user prices.[1724] We concluded that "[u]se of [an ECPR] approach is appropriate in circumstances where the pricing is applicable [sic] to a new market entrant (the open video system operator) that will face competition from an existing incumbent provider (the incumbent cable operator), as opposed to circumstances where the pricing is used to establish a rate for an essential input service that is charged to a competing new entrant by an incumbent provider."[1725] In addition, in *Open Video Systems*, we concluded that the ECPR is appropriate because it encourages entry for open video system operators and also enhances the availability of carriage for unaffiliated programmers.[1726] The ECPR generally protects the provider's profits and provides opportunities for third parties to use the provider's inputs. The ECPR does not provide a mechanism to drive retail prices to competitive levels, however. In *Open Video Systems*, we wanted to encourage entry by open video system providers and to encourage them to have incentives to open their systems to unaffiliated programmers. Here, our goal is to ensure that competition between providers, including third party providers using interconnection and unbundled elements, will drive prices toward competitive levels and thus use of the ECPR is inappropriate.

712. *Universal Service Subsidies.* We conclude that funding for any universal service mechanisms adopted in the universal service proceeding may not be included in the rates for interconnection, network elements, and access to network elements that are arbitrated by the states under sections 251 and 252. Sections 254(d) and 254(e) of the 1996 Act mandate that universal service support be recovered in an equitable and nondiscriminatory manner from all providers of telecommunications services.[1727] We conclude that permitting states to include such costs in rates arbitrated under sections 251 and 252 would violate that requirement by requiring carriers to pay specified portions of such costs solely because they are purchasing services and elements under section 251. Section 252(d)(1) requires that rates for interconnection, network elements, and access to network elements reflect the costs of providing those network elements, not the costs of supporting universal service.

[1724] *Implementation of Section 302 of the Telecommunications Act of 1996 -- Open Video Systems*, CS Docket No. 96-46, Second Report and Order, FCC 96-249 (rel. June 3, 1996) (*Open Video Systems*).

[1725] *Id*. at 127.

[1726] *Id*.

[1727] Joint Explanatory Statement at 131 ("In keeping with the conferees' intent that universal service support should be clearly identified, [section 254(e)] states that such support should be made explicit . . .").

713. Section 254(f) provides that a state may adopt equitable, nondiscriminatory, specific, and predictable mechanisms to advance universal service within that state.[1728] If a state collects universal service funding in rates for elements and services pursuant to sections 251 and 252, it will be imposing non-cost based charges in those rates. Including non-cost based charges in the rates for interconnection and unbundled elements is inconsistent with our rules implementing sections 251 and 252 which require that these rates be cost-based. It is also inconsistent with the requirement of section 254(f) that telecommunications carriers contribute to state universal service on a nondiscriminatory basis, because telecommunications carriers requesting interconnection or access to unbundled network elements will be required to make contributions to universal service support through such surcharges.[1729] States may not, therefore, include universal service support funding in the rates for elements and services pursuant to sections 251 and 252, nor may they implement mechanisms that have the same effect. For example, states may not fund universal service support by imposing higher rates for interconnection, unbundled elements, or transport and termination on carriers that offer service to different types of customers or different geographic areas. To the extent that New York's "pay or play" system funds universal service in this manner, it violates sections 251, 252, and 254 of the 1996 Act. Nothing in the 1996 Act or in this Order, however, precludes a state from adopting a universal service funding mechanism, whether interim or otherwise, if such funds are collected in accordance with section 254(f) on an "equitable and nondiscriminatory basis" through "specific, predictable, and sufficient mechanisms that do not rely on or burden Federal universal service support mechanisms."[1730]

714. Our decision here does not exempt carriers purchasing elements or services under section 251 from contributing to (or possibly receiving) universal service support. Rather, the recovery of universal service support costs from telecommunications carriers, including carriers requesting unbundled network elements, will be governed by section 254 of the 1996 Act. Federal universal service support mechanisms will be determined by our decisions reached in CC Docket 96-45, based on the recommendations of the Federal/State Universal Service Joint Board, and states may adopt additional universal service support mechanisms consistent with section 254(f).

715. We are mindful that the requirements of the 1996 Act may be disruptive to existing state universal service support mechanisms during the period commencing with this order and continuing until we complete our universal service proceeding to implement section 254. As discussed in the subsection immediately below, we permit incumbent LECs to continue to recover certain non-cost-based interstate access charge revenues for a limited period of time, largely because of concerns about possible deleterious

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[1728] 47 U.S.C. § 254(f).

[1729] *See infra*, Section VII.D.3., discussing discrimination.

[1730] 47 U.S.C. § 254(f).

impacts on universal service. We also authorize incumbent LECs, for a similar limited period of time, to continue to recover explicit intrastate universal service subsidy revenues based on intrastate access charges. This mechanism minimizes any possibility that implementation of sections 251 and 252 will unduly harm universal service during the interim period prior to completion of our universal service and access reform proceedings. Because we conclude this action should adequately provide for the continuation of a portion of existing subsidy flows during a transition period until completion of our proceeding implementing section 254, we decline to permit any additional funding of universal service support through rates for interconnection, unbundled elements, and transport and termination during the interim period.

716. *Interim Application of Access Charges to Purchasers of Unbundled Local Switching Element.* In the introduction of this Order, we emphasize that implementation of section 251 of the 1996 Act is integrally related to both universal service reform as required under section 254, and to reform of the interstate access charge system.[1731] In order to achieve pro-competitive, deregulatory markets for all telecommunications services, we must create a new system of funding universal service that is specific, explicit, predictable, sufficient, and competitively neutral. We also must move access charges to more cost-based and economically efficient levels. We intend to fulfill both of these goals in the coming months, by completing our pending universal service proceeding to implement section 254 by our statutory deadline of May 1997, and by addressing access charge issues in an upcoming access reform proceeding. The 1996 Act, however, requires us to adopt rules implementing section 251 by August 1996. We are concerned that implementation of the requirements of section 251 now, without taking into account the effects of the new rules on our existing access charge and universal service regimes, may have significant, immediate, adverse effects that were neither intended nor foreseen by Congress.

717. Specifically, as we conclude above, the 1996 Act permits telecommunications carriers that purchase access to unbundled network elements from incumbent LECs to use those elements to provide telecommunications services, including the origination and termination of interstate calls. Without further action on our part, section 251 would allow entrants to use those unbundled network facilities to provide access services to customers they win from incumbent LECs, without having to pay access charges to the incumbent LECs. This result would be consistent with the long term outcome in a competitive market. In the short term, however, while other aspects of our regulatory regime are in the process of being reformed, such a change may have detrimental consequences.

718. The access charge system includes non-cost-based components and elements that at least in part may represent subsidies, such as the carrier common line charge (CCLC) and the transport interconnection charge (TIC). The CCLC recovers part of the allocated interstate costs for incumbent LECs to provide local loops to end users. In the universal service NPRM, we observed that the CCLC may result in higher-volume toll users paying rates that exceed cost, and some customers paying rates that

[1731] *See supra*, Section I.B.

are below cost. We sought comment on whether that subsidy should be continued, and on whether and how it should be restructured.[1732] The nature of most of the revenues recovered through the TIC is unclear and subject to dispute, although a portion of the TIC is associated with certain costs related to particular transport facilities. Although the TIC was not created to subsidize local rates, some parties have argued in the *Transport* proceeding and elsewhere that some portion of the revenues now recovered through the TIC may be misallocated local loop or intrastate costs that operate to support universal service.[1733] In the forthcoming access reform proceeding, we intend to consider the appropriate disposition of the TIC, including the development of cost-based transport rates as directed by the United States Court of Appeals for the District of Columbia Circuit in *Competitive Telecommunications Association v. FCC* (*CompTel v. FCC*).[1734]

719. Without a temporary mechanism such as the one we adopt below, the implementation of section 251 would permit competitive local service providers that also provide interstate long-distance service to avoid totally the CCLC and the TIC, which in part represent contributions toward universal service, by serving their local customers solely through the use of unbundled network elements rather than through resale. We believe that allowing such a result before we have reformed our universal service and access charge regimes would be undesirable as a matter of both economics and policy, because carrier decisions about how to interconnect with incumbent LECs would be driven by regulatory distortions in our access charge rules and our universal service scheme, rather than the unfettered operation of a competitive market. Because of our desire to err on the side of caution where universal service may be implicated, we conclude that some action is needed during the interim period before we complete our access reform and universal service proceedings.

720. We conclude that we should establish a temporary transitional mechanism to help complete all of the steps toward the pro-competitive goal of the 1996 Act, including the implementation of a new, competitively-neutral system to fund universal service and a comprehensive review of our system of interstate access charges. Therefore, for a limited period of time, incumbent LECs may recover from interconnecting carriers the CCLC and a charge equal to 75 percent of the TIC for all interstate minutes traversing the incumbent LECs' local switches for which the interconnecting carriers pay unbundled local switching element charges. Incumbent LECs may recover these charges only until the earliest of: (1) June

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[1732] *Universal Service* NPRM at paras. 113-14.

[1733] *Transport Rate Structure and Pricing*, CC Docket No. 91-213, Report and Order and Further Notice of Proposed Rulemaking, 7 FCC Rcd 7006, 7065-7066 (1992) (*First Transport Order*). *Cf.* Letter from Bruce K. Cox, Government Affairs Director, AT&T, to William F. Caton, Acting Secretary, FCC, September 7, 1995 (filed in CC Docket No. 91-213) (suggesting that TIC revenues not allocable to specific transport facilities may represent misallocated common line costs).

[1734] *Competitive Telecommunications Association v. FCC*, No. 96-1168 (D.C. Cir. July 5, 1996).

30, 1997; (2) the effective date of final decisions by the Commission in both the universal service and access reform proceedings; or (3) if the incumbent LEC is a BOC, the date on which that BOC is authorized under section 271 of the 1996 Act to offer in-region interLATA service. The end date for BOCs that are authorized to offer interLATA service shall apply only to the recovery of access charges in those states in which the BOC is authorized to offer such service.

721. We tentatively concluded in the NPRM that purchasers of unbundled network elements should not be required to pay access charges. We reaffirm our conclusion above in our discussion of unbundled network elements that nothing on the face of sections 251(c)(3) and 252(d)(1) compels telecommunications carriers that use unbundled elements to pay these charges, nor limits these carriers' ability to use unbundled elements to originate or terminate interstate calls, and that payment of rates based on TELRIC plus a reasonable allocation of common costs, pursuant to section 251(d)(1), represents full compensation to the incumbent LEC for use of the network elements that telecommunications carriers purchase. Because of the unique situation described in the preceding paragraphs, however, we conclude, contrary to our proposal in the NPRM, that during a time-limited period, interconnecting carriers should not be able to use unbundled elements to avoid access charges in all cases. As detailed below, this temporary mechanism will apply only to carriers that purchase the local switch as an unbundled network element, and use that element to originate or terminate interstate traffic.[1735] We are applying these transitional charges to the unbundled local switching element, rather than to any other network elements, because such an approach is most closely analogous to the manner in which the CCLC and TIC are recovered in the interstate access regime. Currently, the CCLC and TIC apply to interstate switched access minutes that traverse incumbent LECs' local switches. Applying the CCLC and 75 percent of the TIC to the unbundled local switching element is consistent with our goal of minimizing disruptions while we reform our universal service system and consider changes to our access charge mechanisms. Moreover, the CCLC and the TIC are recovered on a per-minute basis, and the local switch is the primary point at which incumbent LECs are capable of recording interstate minutes for traffic associated with end user customers of requesting carriers.

722. We have crafted this short-term continuation of certain access charge revenue flows to minimize the possibility that incumbent LECs will be able to "double recover" through access charges the facility costs that new entrants have already paid to purchase unbundled elements. For that reason, we do not permit incumbent LECs to assess on purchasers of the unbundled local switching element any interstate access charges other than the CCLC and 75 percent of the TIC. The other access charges are all designed to recover the cost of particular facilities involved in the provision of interstate access services, such as local switching, dedicated interoffice transport circuits, and tandem switching. Imposition of these facility-based

[1735] As discussed *infra*, carriers that choose to enter a local market through resale of an incumbent LEC's intrastate local exchange service will pay interstate and intrastate access charges to originate and terminate toll traffic for end user customers that purchase that resold local exchange service.

access charges in addition to the cost-based charges for comparable network elements established under Section 252 could result in double recovery. The mechanism we establish will ensure that incentives created by non-cost-based elements of access charges do not result in harmful consequences prior to completion of access reform and our universal service proceeding. Imposition of additional access charges is therefore not necessary. We note that this mechanism serves to minimize the potentially disruptive effects of our decisions on incumbent LECs, including small incumbent LECs.[1736]

723. For the same reason, we permit incumbent LECs to recover only 75 percent of the TIC. Some portion of the TIC recovers revenues associated with specific transport facilities. To the extent that these costs can be identified clearly, they should not be imposed on new entrants through the TIC. Incumbent LECs will be fully compensated for any transport facilities that new entrants purchase from them through the unbundled element rates states establish under 252(d)(1), which, as we have stated, must be based on economic cost rather than access charges. In our interim transport rate restructuring, we explicitly set the initial tandem switching rate at 20 percent of the interstate revenue requirement, with the remainder included in the TIC.[1737] In addition, certain costs of upgrading incumbent LEC networks to support SS7 signaling were allocated to transport through then-existing separations procedures. In our interim transport rate restructuring, we did not create any facility-based charges to recover these costs,[1738] so the associated revenues presumably were incorporated into the TIC. There may also be other revenues associated with transport facilities that are recovered today through the TIC. While we are uncertain of the precise magnitude of these revenues, in our best judgment, based on the record in the *Transport* proceeding and other information before us, we find that it is likely that these revenues approach, but probably do not exceed 25 percent of the TIC for most incumbent LECs. Thus, we believe that 25 percent is a conservative amount to exclude from the TIC to ensure that incumbent LECs do not double recover revenues associated with transport facilities from new entrants. Moreover, the Court in *CompTel v. FCC* remanded our *Transport* decision, in part, because of the inclusion of tandem switching revenues in the TIC rather than in the rate element for tandem switching. We find that excluding 25 percent of the TIC represents a reasonable exercise of our discretion to prevent revenues associated with the tandem switching revenue requirement from being recovered from purchasers or unbundled local switching.

724. We strongly emphasize that these charges will apply to purchasers of the unbundled switching element only for a very limited period, to avoid the possible harms that might arise if we were to ignore the effects on access charges and universal service of implementation of section 251. BOCs shall not be permitted to recover these revenues once they are authorized to offer in-region interLATA service, because

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[1736] *See* Regulatory Flexibility Act, 5 U.S.C. §§ 601 *et seq*.

[1737] *First Transport Order*, 7 FCC Rcd at 7019.

[1738] *First Transport Order*, 7 FCC Rcd at 7019.

at that time the potential loss of access charge revenues faced by a BOC most likely will be able to be offset by new revenues from interLATA services. Moreover, although we do not prejudge the conditions necessary to grant BOC petitions under section 271 to offer in-region interLATA service, we do decide that BOCs should not be able to charge the CCLC and the TIC, which are not based on forward-looking economic costs, to competitors that use unbundled elements under section 251 once they are authorized to provide in-region interLATA service. Only BOCs are subject to special restrictions in the 1996 Act to ensure that their entry into the in-region interLATA market does not have an adverse impact on competition. We conclude that this additional trigger date after which BOCs may not continue to receive access charges from purchasers of unbundled local switching is consistent with this Congressional design.

725. We have selected June 30, 1997 as an ultimate end date for this transitional mechanism to coincide with the effective date for LEC annual access tariffs, and because we believe it is imperative that this transitional requirement be limited in duration. We can conceive of no circumstances under which the requirement that certain entrants pay the CCLC or a portion of the TIC on calls carried over unbundled network elements would be extended further. The fact that access or universal service reform have not been completed by that date would not be a sufficient justification, nor would any actual or asserted harm to the financial status of the incumbent LECs. By June 30, 1997, the industry will have had sufficient time to plan for and adjust to potential revenue shifts that may result from competitive entry. Thus, the economic impact of our decision on competitive local service providers, including those that are small entities, should be minimized.[1739]

726. We believe that we have ample legal authority to implement this temporary transitional measure, and we find that this approach is consistent with the letter and spirit of the 1996 Act. We recognize that the CCLC and TIC have not been developed in accordance with the pricing standards of section 252(d)(1), and that to comply with the 1996 Act, the rates that states establish for interconnection and unbundled network elements may not include non-cost-based amounts or subsidies. The 1934 and 1996 Acts do, however, give us legal authority to determine, for policy reasons, that users of LEC facilities should pay certain access charges for a period of time.[1740] Section 4(i) of the 1934 Act authorizes the Commission to "perform any and all acts . . . not inconsistent with this Act, as may be necessary in the execution of its functions."[1741] Given the extraordinary upheaval in the industry's structure set in motion by the 1996 Act, and the specific concerns described above, we believe that a temporary mechanism is necessary in order to ensure that the policy goals underlying the access charge system and the

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[1739] *See* Regulatory Flexibility Act, 5 U.S.C. §§ 601 *et seq.*

[1740] *See, e.g., New England Tel. and Tel . Co. v. FCC*, 826 F.2d 1101 (D.C. Cir 1987); *North American Telecommunications Association v. FCC*, 772 F.2d (7th Cir. 1085); *Lincoln Tel. and Tel. Co. v. FCC*, 659 F.2d (D.C. Cir. 1989).

[1741] 47 U.S.C. § 4(i).

Communications Act itself are not undermined. Further, we believe section 251(g) of the 1996 Act lends support to our decision. As discussed above, section 251(g) does not require that incumbent LECs continue to receive access charge revenues when telecommunications carriers use unbundled incumbent LEC network elements to originate and terminate interstate traffic. That section does, however, provide evidence of Congressional recognition of the potential tension between existing interconnection obligations, such as access charges, and the new methods of interconnection mandated by section 251, and therefore supports our decision to create a limited-duration mechanism to address this tension.

727. The decision of the court in *CompTel v. FCC* to remand our decision to adopt the TIC is not inconsistent with this approach. The Court's concern stemmed, in part, from the inclusion of a portion of the interstate tandem switching revenue requirement in the TIC. We have excluded from the charges that purchasers of unbundled local switching must pay a percentage of the TIC that, at a minimum, includes these allocated tandem switching revenues from the transitional charges that incumbent LECs may assess on IXCs.[1742] Furthermore, the Court directed the Commission to develop a cost-based transport rate structure, or to explain why it chose not to do so.[1743] We intend to fulfill this obligation in the forthcoming access reform proceeding. The charge equal to 75 percent of the TIC will be applied only as an interim measure for a brief, clearly-identified period, until that restructuring of access charges is completed. The court expressly acknowledged that the 1996 Act would have implications for the access charge system.[1744] For the reasons described above, we conclude that these effects necessitate temporary application of a portion of the TIC to entrants that win end user customers from LECs, and that purchase the local switch as an unbundled element to originate and terminate interstate and intrastate toll traffic for such end users. In the access reform proceeding, we intend to determine the appropriate disposition for these revenues. Until we have had the opportunity to do so, however, we permit incumbent LECs to recover a transitional charge equal to 75 percent of the TIC under the limited circumstances described herein.

728. The interim mechanism we establish here differs from the waiver relief we have previously granted to NYNEX and Ameritech to permit them to recover certain interstate access charge revenues through "bulk billing" of revenues to all interstate switched access customers.[1745] Those orders responded

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[1742] As discussed above, we estimate that the tandem switching, SS7, and other costs associated with transport facilities now recovered through the TIC likely do not exceed 25% of the TIC for most incumbent LECs.

[1743] *Competitive Telecommunications Association v. FCC*, No. 96-1168 at 26-27.

[1744] *Id.* at 12-13.

[1745] *See The NYNEX Tel. Cos. Petition for Waiver, Transition Plan to Preserve Universal Service in a Competitive Environment*, Memorandum Opinion and Order, 10 FCC Rcd 7445 (1995), *reconsideration pending* (*NYNEX USPP Order*); *Ameritech Operating Companies Petition for a Declaratory Ruling and Related Waivers to Establish a New Regulatory Model for the Ameritech Region*, Order, FCC 96-58 (released Feb. 15, 1996) (*Ameritech Customers First Order*).

to waiver requests filed prior to the passage of the 1996 Act. Our responsibility in those proceedings was to determine whether special circumstances existed, and whether the specific relief requested better served the public interest than continued application of our general rules. By constrast, the action we take today addresses industry-wide issues that arise from the new regime put into place by section 251 of the 1996 Act, which allows states to establish unbundled network element rates that recover the full unseparated cost of elements. Our response to the Ameritech and NYNEX waiver petitions does not, simply because those petitions also concerned access charge recovery, constrain our decision in this proceeding.

729. It would be unreasonable to provide such a transitional mechanism on the federal level, but to deny similar authority to the states. Therefore, states may continue existing explicit universal service support mechanisms based on intrastate access charges for an interim period of a similar brief, clearly-defined length. During that period, unless decided otherwise by the state, incumbent LECs may continue to recover such revenues from purchasers of unbundled local switching elements that use those elements to originate or terminate intrastate toll calls for end user customers they win from incumbent LECs. States may terminate these mechanisms at any time. We define mechanisms based on intrastate access charges as those mechanisms that require purchasers of intrastate access services from incumbent LECs to pay non-cost-based charges for those access services on the basis of their intrastate access minutes of use.

730. We do not intend, however, that such a transitional mechanism eviscerate the requirements of sections 252 and 254, which, as we have stated, prohibit funding of universal service subsidies through rates for interconnection and unbundled network elements. Mechanisms such as New York's "pay or play" system, which would impose intrastate access charges on non-access services rather than allowing incumbent LECs to recover non-cost-based revenues from purchasers of access services, may not be included in this interim system. Such a result is justified because state "pay or play" mechanisms do not at present constitute a significant revenue stream to incumbent LECs, and therefore elimination of this mechanism is unlikely, in the short term, to have significant detrimental effects on universal service support.

731. These state mechanisms must end on the earlier of: (1) June 30, 1997; or (2) if the incumbent LEC that receives the transitional access charge revenues is a BOC, the date on which that BOC is authorized under section 271 of the 1996 Act to offer in-region interLATA service. With one exception, the analysis provided above as to the rationale for the end dates for the transitional interstate access charge mechanism applies here as well. Because our access reform proceeding focuses on federal charges, and because the full extent of the section 254 universal service mechanism remains to be determined in that proceeding, intrastate access charge-based universal service support mechanisms should not now be required to terminate upon the completion of those proceedings.

732. As with our decision to permit incumbent LECs to continue to receive certain interstate access charge revenues from some purchasers of unbundled local switching for a limited period of time, we believe our decision to allow states to preserve certain intrastate universal service support mechanisms

based on access charges is within our authority under section 251(d)(1) of the 1996 Act, and section 4(i) of the 1934 Act. Moreover, although section 251(g) does not directly refer to intrastate access charge mechanisms, it would be incongruous to conclude that Congress was concerned about the effects of potential disruption to the interstate access charge system, but had no such concerns about the effects on analogous intrastate mechanisms.

(c) Fifth Amendment Issues

733. We conclude that our decision that prices for incumbent LECs' unbundled elements and interconnection offerings be based on forward-looking economic cost does not violate the incumbent LECs' rights under the Fifth Amendment of the Constitution. The Supreme Court has recognized that public utilities owned and operated by private investors, even though their assets are employed in the public interest to provide consumers with service, may assert their rights under the Takings Clause of the Fifth Amendment.[1746] In applying the Takings Clause to rate setting for public utilities, the Court has stated that "[t]he guiding principle has been that the Constitution protects utilities from being limited to a charge for their property serving the public which is so 'unjust' as to be confiscatory."[1747]

734. The Supreme Court has held that the determination of whether a rate is confiscatory depends on whether that rate is just and reasonable, and not on what methodology is used.[1748] In *Federal Power Comm'n v. Hope Natural Gas Co.*, the Court upheld the Federal Power Commission's order that required the company to make a large reduction in wholesale gas rates. The commission based its determination of a reasonable rate of return on a plant valuation determined by using a historical cost methodology that was only half as large as the company's own valuation based on forward-looking reproduction costs. In its decision, the Court set forth the governing legal standard for determining whether a rate is constitutional:

> Under the statutory standard of "just and reasonable" it is the result reached not the method employed that is controlling. It is not the theory but the impact of the rate order which counts. If the total effect of the rate order cannot be said to be unjust and unreasonable,

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[1746] The Fifth Amendment provides that, "private property [shall not] be taken for public use, without just compensation." U.S. Const. amend. V. *See Duquesne Light Co. v. Barasch*, 488 U.S. 299, 307 (1989) (*Duquesne*).

[1747] *Duquesne*, 488 U.S. at 307 (*citing Covington & Lexington Turnpike Road Co. v. Sandford*, 164 U.S. 578, 597 (1896)).

[1748] *Hope Natural Gas*, 320 U.S. at 602-603; *see also Duquesne; In re Permian Basin Area Rate Cases*, 390 U.S. 747 (1968); *Federal Power Commission v. Memphis Light, Gas & Water Division*, 411 U.S. 458 (1973); *Jersey Central Power & Light v. FERC*, 810 F.2d 1168 (D.C. Cir. 1987).

> judicial inquiry under the Act is at an end. The fact that the method employed to reach that result may contain infirmities is not then important.[1749]

735. The Court went on to explain that, in determining whether a rate is reasonable, the regulatory body must balance the interests of both the investor and consumer.[1750] "From the investor or company point of view, it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business . . . . [T]he return on the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks."[1751]

736. Under sections 251(c)(2) and (3) of the 1996 Act, incumbent LECs must establish rates for interconnection and unbundled elements that are just and reasonable.[1752] In adopting the rules that govern those rates, under *Hope Natural Gas* we must consider whether the end result of incumbent LEC rates is just and reasonable. Incumbent LECs argue that establishing a rate structure that does not permit recovery of historical or embedded costs is confiscatory. We disagree. As stated above, the Court has consistently held since *Hope Natural Gas* that it is the end result, not the method used to achieve that result, that is the issue to be addressed.[1753] Indeed, the Court has found that the "fixing of prices, like other applications of the police power, may reduce the value of the property which is being regulated. But the fact that the value is reduced does not mean that the regulation is invalid."[1754] Moreover, the Court has upheld as reasonable changes in ratemaking methodology when the change resulted in the exclusion of historical costs prudently incurred.[1755] Thus, the mere fact that an incumbent LEC may not be able to set rates that will allow it to recover a particular cost incurred in establishing its regulated network does not, in and of itself, result in confiscation.

737. Moreover, *Hope Natural Gas* requires only that the end result of our overall regulatory framework provides LECs a reasonable opportunity to recover a return on their investment. In other

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[1749] *Hope Natural Gas*, 320 U.S. at 602.

[1750] *Id*.

[1751] *Id*. at 603.

[1752] 47 U.S.C. § 251(c)(2) and (3).

[1753] *See, e.g., Duquesne*, 488 U.S. at 310;*Hope Natural Gas*, 320 U.S. at 602.

[1754] *Hope Natural Gas*, 320 U.S. at 601.

[1755] *Duquesne*, 488 U.S. at 301-302.

words, incumbent LECs' overall rates must be considered, including the revenues for other services under our jurisdiction.[1756]

738. In this proceeding, we are establishing pricing rules that should produce rates for monopoly elements and services that approximate what the incumbent LECs would be able to charge if there were a competitive market for such offerings. We believe that a forward-looking economic cost methodology enables incumbent LECs to recover a fair return on their investment, *i.e.*, just and reasonable rates. The record does not compel a contrary conclusion. No incumbent LEC has provided persuasive evidence that prices based on a forward-looking economic cost methodology would have a significant impact on its "financial integrity." We further note that at least one federal appellate court has held incremental cost-based pricing constitutional.[1757]

739. Incumbent LECs may seek relief from the Commission's pricing methodology if they provide specific information to show that the pricing methodology, as applied to them, will result in confiscatory rates. We also do not completely foreclose the possibility that incumbent LECs will be afforded an opportunity to recover, to some extent, their embedded costs through a mechanism separate from rates for interconnection and unbundled network elements. As stated above, we intend to explore this issue in detail in our upcoming access reform proceeding.

740. GTE argues that the proper standard to review our ratemaking methodology is the just compensation standard generally reserved for takings of property. This is in effect a contention that the 1996 Act's physical collocation and unbundled network facility requirements constitute physical occupation of their property that should be deemed a taking and that must be subject to "just compensation." Assuming for the sake of argument that the physical collocation and unbundled facilities requirements do result in a taking, we nevertheless find that the ratemaking methodology we have adopted satisfies the just compensation standard. Just compensation is normally measured by the fair market value of the property subject to the taking.[1758] Just compensation is not, however, intended to permit recovery of monopoly rents.[1759] The just and reasonable rate standard of TELRIC plus a reasonable allocation of the joint and common costs of providing network elements that we are adopting attempts to replicate, with respect to

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[1756] However, we may not consider incumbent LECs' revenue derived from services not under our jurisdiction. *Smith v. Ill. Bell*, 282 U.S. 133 (1930).

[1757] *Metropolitan Transp. Auth. v. Interstate Commerce Commission*, 792 F.2d 287, 297 (2d Cir.), *cert. denied*, 479 U.S. 1017 (1986)

[1758] *See, e.g., United States v. Miller*, 317 U.S. 369, 374 (1943) (holding that just compensation can readily be set by ascertaining the property's fair market value, *i.e.*, "what a willing buyer would pay in cash to a willing seller").

[1759] *See, e.g., Lord Mfg. Co. v. United States*, 84 F.Supp. 748, 755-56 (Ct.Cl. 1949), *citing United States v. Cors*, 337 U.S. 325, 334 (1949).

bottleneck monopoly elements, the rates that would be charged in a competitive market,[1760] and, we believe, is entirely consistent with the just compensation standard. Indeed, a similar rate methodology based on incremental costs has been found to satisfy the just compensation requirement.[1761] For these reasons, we conclude that, even if the 1996 Act's physical collocation and unbundled network facility requirements constitute a taking, a forward-looking economic cost methodology satisfies the Constitution's just compensation standard.

3. Rate Structure Rules

a. General Rate Structure Rules

(1) Background

741. In addition to applying our economic pricing methodology to determine the rate level of a specific element or interconnection, the state must also determine the appropriate rate structure. We discuss in this section general principles for analyzing rate structure questions, such as in what circumstances charges should be flat-rated or usage sensitive and in what circumstances they should be recurring or non-recurring. These rate structure rules will apply as well if a state sets rates based on default proxies discussed in Section VII.C.2 below, where we also discuss the appropriate rate structure for specific network elements. Network providers incur costs in providing two broad categories of facilities, dedicated and shared. Dedicated facilities are those that are used by a single party -- either an end user or an interconnecting network. Shared facilities are those used by multiple parties. In the NPRM, we proposed that costs should be recovered in a manner that reflects the way they are incurred.[1762] We also sought comment on whether we should require states to provide for recovery of dedicated facility costs on a flat-rated basis, or at a minimum, require LECs to offer a flat-rate option.[1763]

[1760] *Compare Policy and Rules Concerning Rates for Dominant Carriers*, Further Notice of Proposed Rulemaking, CC Docket No. 87-313, 3 FCC Rcd 3195, 3200-01 (1988).

[1761] *Metropolitan Transp. Auth. v. Interstate Commerce Commission*, 792 F.2d at 297.

[1762] NPRM at para. 150.

[1763] *Id*. at para. 152.

(2) Comments

742. Parties from all sectors of the telecommunications industry agree that costs should be recovered in a manner that reflects the way they are incurred.[1764] Lincoln states that using an approach that varies with capacity, without taking into account the utilization of shared facilities, would not allow small and mid-sized LECs to recover their total costs, because they lack economies of scale and scope.[1765] No commenters take issue with that principle or the principle that the costs of dedicated facilities should be recovered through flat rates. A wide variety of parties proposed that the Commission adopt such a rule.[1766] BellSouth, however, opposes rigid rate structure rules, and contends they could be detrimental if they preclude alternative structures to which parties are willing to agree.[1767]

(3) Discussion

743. We conclude, as a general rule, that incumbent LECs' rates for interconnection and unbundled elements must recover costs in a manner that reflects the way they are incurred. This will conform to the 1996 Act's requirement that rates be cost-based, ensure requesting carriers have the right incentives to construct and use public network facilities efficiently, and prevent incumbent LECs from inefficiently raising costs in order to deter entry. We note that this conclusion should facilitate competition on a reasonable and efficient basis by all firms in the industry by establishing prices for interconnection and unbundled elements based on costs similar to those incurred by the incumbents, which may be expected to reduce the regulatory burdens and economic impact of our decision for many parties, including both small entities seeking to enter the local exchange markets and small incumbent LECs.[1768] We also adopt some more specific rules that follow from this general rule.

744. First, we require that the charges for dedicated facilities be flat-rated, including, but not limited to, charges for unbundled loops, dedicated transport, interconnection, and collocation. These charges should be assessed for fixed periods, such as a month. We are requiring flat-rated charges for

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[1764] *See, e.g.*, AT&T comments at 67; GSA/DoD comments at 10; Kentucky Commission comments at 5; Lincoln Tel. comments at 17; Sprint comments at 62; Texas Public Utility Counsel comments at 36; USTA comments at 57; LDDS comments at 57; NEXTLINK comments at 30 (generally supporting rate structures that reflect off-peak costs); Washington Commission comments at 24.

[1765] Lincoln Tel. comments at 17.

[1766] *See, e.g.*, Florida Commission comments at 31; GSA/DoD comments at 10; MFS comments at 61-63; Ohio Consumers' Counsel comments at 30; Telecommunications Resellers Ass'n comments at 42.

[1767] BellSouth comments at 57-58.

[1768] *See* Regulatory Flexibility Act, 5 U.S.C. §§ 601 *et seq.*

dedicated facilities. Usage-based charges for dedicated facilities would give purchasers of access to network elements an uneconomic incentive to reduce their traffic volumes. Moreover, purchasers of access to network elements with low volumes of traffic would pay below-cost prices, and therefore have an incentive to add lines that they would not add if they had to pay the full cost. As stated in the NPRM, a flat-rated charge is most efficient for dedicated facilities, because it ensures that a customer will pay the full cost of the facility, and no more. It ensures that an entrant will, for example, purchase the exclusive right to use additional loops only if the entrant believes that the benefits of the additional loops will exceed its costs. It also ensures that the entrant will not face an additional (and non-cost-based) usage charge.

745. Second, if we apply our general rule that costs should be recovered in a manner that reflects the way they are incurred, then recurring costs must be recovered through recurring charges, rather than through a nonrecurring charge. A recurring cost is one incurred periodically over time. A LEC may not recover recurring costs such as income taxes, maintenance expenses, and administrative expenses through a nonrecurring charge because these are costs that are incurred in connection with the asset over time. For example, we determine that maintenance expenses relating to the local loop must be recovered through the recurring loop charge, rather than through a nonrecurring charge imposed upon the entrant.

746. We find that recovering a recurring cost through a nonrecurring charge would be unjust and unreasonable because it is unlikely that incumbent LECs will be able to calculate properly the present value of recurring costs. To calculate properly the present value of recurring costs, an incumbent LEC would have to project accurately the duration, level, and frequency of the recurring costs and estimate properly its overall cost of capital. We find that, in practice, the present value of the recurring costs cannot be calculated with sufficient accuracy to warrant up-front recovery of these costs because incumbent LECs lack sufficient experience with the provision of interconnection and unbundled rate elements. Without sufficient experience, incumbent LECs are unable to project the length of time that an average entrant would interconnect with, or take an unbundled element from, the incumbent LEC, or how expenses associated with interconnection and unbundled rate elements would change over time. In contrast, a recurring charge for a recurring cost would ensure that a customer is only charged for the costs the entrant incurs while that entrant is taking interconnection service or unbundled rate elements from the incumbent LEC. Moreover, when costs associated with the interconnection and particular unbundled rate elements change, the incumbent LEC can make appropriate adjustments to the charges at the time such cost changes occur.

747. Accordingly, we find that imposing nonrecurring charges for recurring costs could pose a barrier to entry because these charges may be excessive, reflecting costs that may (1) not actually occur; (2) be incurred later than predicted; (3) not be incurred for as long as predicted; (4) be incurred at a level that is lower than predicted; (5) be incurred less frequently than predicted; and (6) be discounted to the present using a cost of capital that is too low.

748. Notwithstanding the foregoing, where recurring costs are *de minimis*, we will permit incumbent LECs to recover such costs through nonrecurring charges. We find that recurring costs are *de minimis* where the costs of administering the recurring charge would be excessive in relation to the amount of the recurring costs.

749. Third, states may, but need not, require incumbent LECs in an arbitrated agreement to recover nonrecurring costs, costs that are incurred only once, through recurring charges over a reasonable period of time. The recovery of such nonrecurring costs through recurring charges is a common practice for telecommunications services. Construction of an interconnector's physical collocation cage is an example of a nonrecurring cost. We find that states may, where reasonable, require an incumbent LEC to recover construction costs for an interconnector's physical collocation cage as a recurring charge over a reasonable period of time in lieu of a nonrecurring charge. This arrangement would decrease the size of the entrant's initial capital outlay, thereby reducing financial barriers to entry. At the same time, any such reasonable arrangement would ensure that incumbent LECs are fully compensated for their nonrecurring costs.

750. We require, however, that state commissions take steps to ensure that incumbent LECs do not recover nonrecurring costs twice and that nonrecurring charges are imposed equitably among entrants. A state commission may, for example, decide to permit incumbent LECs to charge the initial entrants the full amount of costs incurred for shared facilities for physical collocation service, even if future entrants may benefit. A state commission may, however, require subsequent entrants, who take physical collocation service in the same central office and receive benefits as a result of costs for shared facilities, to pay the incumbent LEC for their proportionate share of those costs, less depreciation (if an asset is involved). Under this approach, the state commission could require the incumbent LEC to provide the initial entrants *pro rata* refunds, reflecting the full amount of the charges collected from the subsequent entrants. Alternatively, a state commission may decide to permit incumbent LECs to charge initial entrants a proportionate fraction of the costs incurred, based on a reasonable estimate of the total demand by entrants for the particular interconnection service or unbundled rate elements.

751. In addition, state commissions must ensure that nonrecurring charges imposed by incumbent LECs are equitably allocated among entrants where such charges are imposed on one entrant for the use of an asset and another entrant uses the asset after the first entrant abandons the asset. For example, when an entrant pays a nonrecurring charge for construction of a physical collocation cage and the entrant discontinues occupying the cage before the end of the economic life of the cage, a state commission could require that the initial entrant receive a *pro rata* refund from the incumbent LEC for the undepreciated value of the cage in the event that a subsequent entrant takes physical collocation service and uses the asset. Under this approach, the state commission could require that the subsequent entrant pay the incumbent LEC a nonrecurring charge equal to the remaining unamortized value of the cage and the initial entrant will

receive a credit from the incumbent LEC equal to the unamortized value of the cage at the time the subsequent entrant takes service and utilizes the cage.

752. BellSouth's concern that rate structure rules could preclude mutually agreeable alternative structures is misplaced. The rate structure rules we adopt here apply only to rates imposed by the states in arbitration among the parties and to state review of BOC statements of generally available terms. Our rules do not restrict parties from agreeing to alternative rate structures. On the contrary, our intent, following the clear pro-negotiation spirit of the 1996 Act, is for parties to use the backdrop of state arbitrations conducted under our rules, to negotiate more efficient, mutually agreeable arrangements, subject, of course, to the antitrust laws[1769] and to the 1996 Act's requirements that voluntarily negotiated agreements not unreasonably discriminate against third parties.[1770]

b. Additional Rate Structure Rules for Shared Facilities

(1) Background

753. In the NPRM, we stated our belief that the costs of shared facilities should be recovered in a manner that efficiently apportions costs among users that share the facility. The NPRM noted that, for shared facilities, it may be efficient to set prices using any of the following: a usage-sensitive charge; a usage-sensitive charge for peak-time usage and a lower charge for off-peak usage; or a flat charge for the peak capacity that an interconnector wishes to pay for and use as though that portion of the facility were dedicated to the interconnector.[1771]

(2) Comments

754. USTA argues that shared facilities are more reasonably priced on a usage-sensitive basis.[1772] The Florida Commission and Telecommunications Resellers Association both contend that a variety of charges may be appropriate for shared facilities.[1773] Telecommunications Resellers Association further argues that the Commission should "require, where practicable, that LECs offer a flat-rated option with respect to common facilities and bear the burden of justifying instances in which they allege that such an

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[1769] Sherman Antitrust Act, 15 U.S.C. §§ 1 *et seq*.

[1770] *E.g.*, 47 U.S.C. § 252(e)(2)(A)(i).

[1771] NPRM at para. 151.

[1772] USTA comments at 57; *see also* Lincoln Tel. comments at 17; Sprint comments at 62; NTIA reply at 33-34.

[1773] Florida Commission comments at 31; Telecommunications Resellers Ass'n comments at 42.

option is not workable."[1774] AT&T makes a similar proposal, arguing that rates should generally be non-usage sensitive except where a usage-based charge is clearly required.[1775] Lincoln Tel. argues that costs of shared facilities should be apportioned among users of the shared facility and that a capacity approach that does not account for utilization of shared facilities would prevent small and mid-sized LECs from recovering their costs as they lack economies of scale.[1776]

(3) Discussion

755. The costs of shared facilities including, but not limited to, much of local switching, tandem switching, transmission facilities between the end office and the tandem switch, and signaling, should be recovered in a manner that efficiently apportions costs among users. Because the cost of capacity is determined by the volume of traffic that the facilities are able to handle during peak load periods, we believe, as a matter of economic theory, that if usage-sensitive rates are used, then somewhat higher rates should apply to peak period traffic, with lower rates for non-peak usage. The peak load price would be designed to recover at least the cost of the incremental network capacity added to carry peak period traffic. Pricing traffic during peak periods based on the cost of the incremental capacity needed to handle additional traffic would be economically efficient because additional traffic would be placed on the network if and only if the user or interconnecting network is willing to pay the cost of the incremental network capacity required to handle this additional traffic. Such pricing would ensure that a call made during the peak period generates enough revenue to cover the cost of the facilities expansion it requires, and would thus give carriers an incentive to expand and develop the network efficiently. In contrast, off-peak traffic imposes relatively little additional cost because it does not require any incremental capacity to be added to base plant, and consequently, the price for carrying off-peak traffic should be lower.

756. We recognize, however, that there are practical problems associated with a peak-sensitive pricing system. For example, different parts of a given provider's network may experience peak traffic volumes at different times (*e.g.*, business districts may experience their peak period between 10:00 and 11:00 a.m., while suburban areas may have their peak periods between 7:00 and 8:00 p.m.) Moreover, peak periods may change over time. For instance, growth in Internet usage may create new peak periods in the late evening. Further, charging different prices for calls made during different parts of the day may cause some customers to shift their calling to the less expensive time periods, which could shift the peak or create new peaks. Thus, to design an efficient peak-sensitive pricing system requires detailed knowledge of both the structure of costs as well as demand.

[1774] Telecommunications Resellers Ass'n comments at 42.

[1775] AT&T comments at 67.

[1776] *See* Lincoln Tel. comments at 17.

757. We conclude that the practical problems associated with peak-sensitive pricing make it inappropriate for us to require states to impose such a rate structure for unbundled local switching or other shared facilities whose costs vary with capacity. Because we believe that such a structure may be the most economically efficient, however, we do not prohibit states from imposing peak-sensitive pricing. We also expect that parties may be able to negotiate agreements with peak/off-peak differences if the benefits of such distinctions are sufficiently high. We conclude that states may use either usage-sensitive rates or flat capacity-based rates for shared facilities, if a state finds that such rates reasonably reflect the costs imposed by the various users. States may consider for guidance rate structures developed in competitive markets for shared facilities. We note that our decisions in this section may benefit small entity entrants in local exchange and exchange access markets by minimizing the extent to which purchasers of interconnection and unbundled access pay rates that diverge from the costs of those facilities and services.[1777]

c. Geographic/Class-of-Service Averaging

(1) Background

758. In the NPRM, we asked about the appropriate level of aggregation for rates for interconnection and access to unbundled elements. We noted that geographic averaging is simple to administer and prevents unreasonable or unlawful rate differences but, where averaging covers high and low cost areas, it could distort competitors' decisions whether to lease unbundled elements or build their own facilities. We sought comment on the geographic deaveraging of interconnection and unbundled element rates by zone, LATA, or other area.[1778]

759. We also inquired about disaggregation by class of service. We questioned whether business and residential loops, or loops deployed using different technologies should be charged different rates, and how large a differential should be allowed.[1779]

[1777] *See* Regulatory Flexibility Act, 5 U.S.C. §§ 601 *et seq*.

[1778] NPRM at para. 133.

[1779] *Id*.

(2) Comments

760. *Geographic Deaveraging.* Commenters generally agreed that rates for interconnection and unbundled elements should be geographically deaveraged where there are significant cost variations.[1780] Many parties assert that there are large geographic variations in the costs of providing these services and elements.[1781] Many commenters argue that rates for interconnection and unbundled elements must be geographically deaveraged in order to meet the cost-based requirements of sections 251 and 252.[1782] Teleport maintains, however, that most geographic or class-of-service classifications have arisen from marketing or regulatory considerations and have no basis in cost causation.[1783] The Ad Hoc Telecommunications Users Committee fears the "balkanization of [incumbent] LECs' markets" and would only allow geographic deaveraging where incumbent LECs could demonstrate significant regional variation in their non-common costs.[1784] It claims that excessive pricing flexibility would encourage the recovery of common costs to be shifted from competitive markets to less competitive markets.[1785] Finally, MFS would have us require geographic averaging to deter anticompetitive, strategic pricing by incumbent LECs.[1786]

761. *Extent of Deaveraging.* Cincinnati Bell, Lincoln Tel., and MECA would place no limits on the degree of deaveraging that would be permitted.[1787] MCI and Sprint advocate deaveraging based on the population density in specified geographic areas or zones.[1788] AT&T also advocates zone density

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[1780] *See, e.g.*, Connecticut Commission comments at 13-14; N. Economides comments at 3; Maine Commission *et al.* comments at 19. *Cf.* Colorado Commission comments at 41; Ohio Consumers' Counsel comments at 27-28 (deaveraging should be left to states); Pennsylvania Commission comments at 31 (noting industry movement towards deaveraging); Texas Commission at 24 (Commission should defer geographic deaveraging and rate rebalancing to universal service proceeding).

[1781] *See, e.g.*, Cincinnati Bell comments at 27; Lincoln Tel. comments at 14; Maine Commission *et al.* comments at 27-28; Sprint comments at 50-51.

[1782] AT&T comments at 60.

[1783] Teleport comments at 48.

[1784] Ad Hoc Telecommunications Users Committee comments at 47.

[1785] *Id.*

[1786] MFS comments at 55-56.

[1787] *See, e.g.*, Cincinnati Bell comments at 27; Lincoln Tel. comments at 14; MECA comments at 46.

[1788] MCI comments at 68; Sprint comments at 50; *see also* MFS comments at 55-57.

deaveraging and would have us require at least six zones.[1789] MFS proposes that prices could be averaged over several possible areas, with state-wide averaging being the maximum geographic area. To address concerns that widespread averaging may force low cost areas to subsidize high cost areas, MFS suggests that exchanges be assigned to a small number of cost bands based on access line density, but that rates be set at the state-wide average cost of the exchanges assigned to each zone.[1790] GST generally favors a level of disaggregation that would mitigate incumbent LEC administrative expenses, but would require loop components such as drops to be deaveraged and priced at LRIC.[1791]

762. *Opposition to National Rule.* Many state commissions seek flexibility to determine the degree of deaveraging and argue that this issue should be left to the states.[1792] Several favor deaveraging wherever the benefits exceed the administrative costs.[1793] The Connecticut Commission has already allowed SNET to create four cost categories based on density.[1794] The Michigan Commission would deaverage rates for interconnection and access to unbundled elements only where competitive entry warrants such flexibility, subject to a TSLRIC floor constraint.[1795] Michigan Commission further states that there may also be non-competitive situations that warrant rate deaveraging, such as when a service has wide cost variances, when averaging may reduce subscription levels, or when deaveraging could provide more accurate market signals due to cost variation.[1796]

763. *Class-of-Service Deaveraging.* In contrast to the general support by parties for geographic deaveraging, only one party supports class-of-service deaveraging.[1797] That party, the Ohio Consumers' Counsel, argues that permitting intercategory restrictions on unbundled elements would be consistent with

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[1789] AT&T comments at 67.

[1790] MFS comments at 55-56.

[1791] GST comments at 30.

[1792] *See, e.g.*, Colorado Commission comments at 41; Connecticut Commission comments at 13-14; Maine Commission, *et al.* comments at 19-21; Michigan Commission comments at 15; Texas Commission comments at 24; *see also* Ohio Consumers' Counsel comments at 27-28; California Commission reply at 18.

[1793] *See, e.g.*, Connecticut Commission comments at 13-14; Indiana Commission comments at 24; Mass. Commission comments at 11 n.5.

[1794] Connecticut Commission comments at 13-14.

[1795] Michigan Commission comments at 15-16.

[1796] *Id.*

[1797] Ohio Consumers' Counsel comments at 27-28.

intercategory restrictions on resale, such as prohibitions against reselling residential services to business customers, which are permitted under the 1996 Act.[1798] Many parties argue that incumbent LECs should not be able to charge different rates for interconnection or unbundled elements based on the class of service being provided with the elements or the class of customer purchasing or using the interconnection or unbundled elements.[1799] According to most commenters, the 1996 Act's requirement that rates for interconnection and unbundled elements be cost-based generally precludes class-of-service rate differences, unless the costs of provision vary significantly across classes.[1800] Sprint adds that there is no cost justification for rates to differ when unbundled elements are used for business customers instead of residential customers. Sprint also argues that requiring different rates for newer, less-expensive elements would give entrants the incentive to avoid serving customers connected to older, more-expensive plant, which would leave incumbent LECs at systematic cost disadvantages.[1801]

(3) Discussion

764. *Geographic Deaveraging.* The 1996 Act mandates that rates for interconnection and unbundled elements be "based on the cost . . . of providing the interconnection of network elements."[1802] We agree with most parties that deaveraged rates more closely reflect the actual costs of providing interconnection and unbundled elements. Thus, we conclude that rates for interconnection and unbundled elements must be geographically deaveraged.

765. The record reflects that at least two states have implemented geographically- deaveraged rate zones.[1803] These rate zone pricing systems have generally included a minimum of three zones. In the *Expanded Interconnection* proceeding, the Commission also permitted LECs to implement a three zone structure.[1804] We conclude that three zones are presumptively sufficient to reflect geographic cost

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[1798] *Id*.

[1799] *See, e.g.*, Koch comments at 3; GST comments at 30; Mass. Commission comments at 11; MFS comments at 56-57; Sprint comments at 50; Teleport comments at 48.

[1800] *See, e.g.*, Citizens comments at 18; Mass. Commission comments at 11; MFS comments at 56-57.

[1801] Sprint comments at 51.

[1802] 47 U.S.C. § 252(d)(1)(a)(i).

[1803] Connecticut Commission comments at 13; Illinois Commission comments at Attachment C (Illinois Commerce Commission Order), p.54, 60-61.

[1804] *Expanded Interconnection with Local Telephone Company Facilities and Amendment of the Part 69 Allocation of General Support Facility Costs*, CC Docket Nos.91-141 and 92-222, Report and Order and Notice of Proposed Rulemaking, 7 FCC Rcd 7369, 7454-57 (1992) (*Expanded Interconnection Order*); Second Report and Order

differences in setting rates for interconnection and unbundled elements, and that states may, but need not, use these existing density-related rate zones. Where such systems are not in existence, states shall create a minimum of three cost-related rate zones to implement deaveraged rates for interconnection and unbundled elements. A state may establish more than three zones where cost differences in geographic regions are such that it finds that additional zones are needed to adequately reflect the costs of interconnection and access to unbundled elements.

766. *Class-of-Service Deaveraging.* The record leads us to the opposite conclusion for class-of-service deaveraging. Under the 1996 Act, wholesale rates for resold services will be based on retail rates less avoided costs. Rates for interconnection and access to unbundled elements, however, are to be based on costs. We conclude that the pricing standard for interconnection and unbundled elements prohibits deaveraging that is not cost based. Interconnection and unbundled elements are intermediate services provided by incumbent LECs to other telecommunications carriers, and there is no evidence that the cost of providing these intermediate services varies with the class of service the telecommunications carrier is providing to its end-user customers. We conclude that states may not impose class-of-service deaveraging on rates for interconnection and unbundled elements. We disagree with the Ohio Consumers' Counsel's position that the 1996 Act's explicit permission of class-of-service deaveraging of resold services implies that class-of-service deaveraging should be permitted for interconnection and unbundled elements. Finally, we note that these decisions concerning averaging may be expected to lead to increased competition and a more efficient allocation of resources, which should benefit the entire industry, including small entities and small incumbent LECs.[1805]

C. Default Proxy Ceilings and Ranges

767. As previously discussed, we strongly encourage state commissions, as a general rule, to set arbitrated rates for interconnection and access to unbundled network elements pursuant to the forward-looking, economic cost pricing methodology we adopt in this Order. Such rates would approximate levels charged in a competitive market, would be economically efficient, and would be based on the forward-looking, economic cost of providing interconnection and unbundled elements. We recognize, however, that, in some cases, it may not be possible for carriers to prepare, or the state commission to review, economic cost studies within the statutory time frame for arbitration and thus here first address situations in which a state has not approved a cost study. States that do not complete their review of a forward-looking economic cost study within the statutory time periods but must render pricing decisions, will be able to

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and Third Notice of Proposed Rulemaking, 8 FCC Rcd 7374, 7426-29 (1993). LEC central offices in areas with the highest traffic densities were assigned to Zone 1; offices in areas with intermediate degrees of density were assigned to Zone 2; and offices in areas with the lowest density were assigned to Zone 3.

[1805] *See* Regulatory Flexibility Act, 5 U.S.C. §§ 601 *et seq.*

establish interim arbitrated rates based on the proxies we provide in this Order. A proxy approach might provide a faster, administratively simpler, and less costly approach to establishing prices on an interim basis than a detailed forward-looking cost study.

768. The default proxies we establish will, in most cases, serve as presumptive ceilings. States may set prices below those ceilings if the record before them supports a lower price. States should provide a reasoned basis for selecting a particular default price. In one case, for local switching, the default proxy is a range within which a state may set prices.

769. States that set prices based upon the default proxies must also require the parties to update the prices in the interconnection agreement on a going-forward basis, either after the state conducts or approves an economic study according to the cost-based pricing methodology or pursuant to any revision of the default proxy. We believe generic economic cost models,[1806] in principle, best comport with the preferred economic cost approach described previously, and we intend to examine further such models by the first quarter of 1997 to determine whether any of those models, with any appropriate modifications, could serve as better default proxies. Any updated price would take effect beginning at the time of the completed and approved study or the application of the revised default proxy.

770. Second, if a state has approved or conducted an economic cost study, prior to this Order, that complies with the methodology we adopt in this Order, the state may continue to apply the resulting rate even when not consistent with our default proxies. There must, however, be a factual record, including the cost study, sufficient for purposes of review after notice and opportunity for the affected parties to participate.

771. Finally, while we provide for the use by states of default proxies, we recognize that certain states that are unable to utilize an economic cost study may wish to obtain the benefits of setting rates pursuant to such a study for its residents. The Commission will therefore entertain requests by states to review an economic cost study, to assist the state in conducting or reviewing such a study, or to conduct such a study.

1. Use of Proxies Generally

a. Background

772. In the NPRM, we discussed the possibility of setting certain outside limits for interconnection and unbundled element rates, in particular, by the use of proxies. We invited parties to comment on whether the use of certain proxies to set outer boundaries on the prices for interconnection and unbundled

[1806] *See* Section VII.C.3.*infra.*

elements would be consistent with the pricing principles of the 1996 Act. Specifically, in the NPRM, we asked parties to comment on the benefits of various types of proxies: (1) generic cost studies, such as the Benchmark Cost Model and the Hatfield models;[1807] (2) some measure of nationally-averaged cost data;[1808] (3) rates in existing interconnection and unbundling arrangements between incumbent LECs and other providers of local service, such as neighboring incumbent LECs, CMRS providers, or other entrants in the same service area;[1809] (4) a subset of the incumbent LECs' existing interstate access rates, charged for interconnection with IXCs and other access customers, or an intrastate equivalent;[1810] (5) use of the interstate prices established in the *ONA* proceeding for unbundled features and functions of the local switch as ceilings for the same unbundled elements under section 251;[1811] and (6) any other administratively simple methods for establishing a ceiling for interconnection and unbundled network element rates.[1812] As a counterpart to ceilings, we also sought comment on whether it would be necessary or appropriate for us to establish floors for interconnection and unbundled element prices.[1813]

b. Comments

773. *Proxies Generally.* A number of parties offer general support for the use of cost proxies to establish upper limits on the rates that incumbent LECs may charge for interconnection and unbundled elements.[1814] Ad Hoc Telecommunications Users Committee cautions, however, that using a proxy approach does not eliminate the need for detailed analysis of the cost methodologies and cost inputs upon which the proxy is based.[1815] In addition, USTA contends that the Commission should establish a

[1807] NPRM at para. 137;*see infra*, Section VII.C.3, discussing generic cost models.

[1808] NPRM at para. 137.

[1809] *Id*. at para. 138.

[1810] *Id*. at paras. 139-140.

[1811] *Id*. at para. 140.

[1812] *Id*. at para. 141.

[1813] *Id*. at para. 143.

[1814] *See, e.g.*, GSA/DoD comments at 8; Cox comments at 31, reply at 30; WinStar comments at 31; NEXTLINK comments at 27-28; Texas Public Utility Counsel Comments at 28-33; NCTA comments at Attachment A (Declaration of Bruce M. Owen), pp.5-6, reply at 18-19;*see also* USTA comments at 50 ("may be a feasible way to establish presumptively valid rates for some unbundled elements").

[1815] Ad Hoc Telecommunications Users Committee comments at 48-49.

presumptive framework using targets based on pricing proxies, from which the states would be permitted to depart based on individual circumstances.[1816]

774. Incumbent LECs and AT&T generally oppose the use of proxies.[1817] They argue that a national proxy methodology for all network elements is inappropriate because it would not reflect cost-based rates,[1818] may restrict competitive entry,[1819] does not allow for variations among the states,[1820] and is inconsistent with the 1996 Act's mandate of economic costing.[1821] Several commenters contend that the use of proxies could harm small and mid-sized incumbent LECs if such proxies are developed from larger geographic and demographic scales.[1822] In addition, Ameritech opposes the use of proxies for those states that have already adopted cost methodologies and urges the Commission to limit application of such proxies to states that have not yet adopted appropriate cost and pricing methodologies.[1823]

775. *Floors and Ceilings.* Several commenters oppose adoption of a federal floor and ceiling for the rates of interconnection and access to unbundled elements.[1824] They argue generally that such an approach is inferior to a prescription of a specific methodology because it results in rates that are not cost-based and therefore inconsistent with the statute, provides an incentive to incumbent LECs to price

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[1816] USTA reply at 19, 28;*see also* Washington Commission comments at 27.

[1817] *See, e.g.*, AT&T comments at 52-53; Bell Atlantic comments at 39; Cincinnati Bell comments at 27; Frontier comments at 22-23; LDDS comments at 65 n.66; Lincoln Tel. comments at 15-16.

[1818] *See, e.g.*, ALTS comments at 37; AT&T comments at 53; NYNEX comments at 53; Lincoln Tel. comments at 15-16; Texas Statewide Telephone Cooperative comments at 14; Rural Tel. Coalition comments at 22; Washington Independent Tel. Ass'n comments at 6.

[1819] *E.g.*, Cincinnati Bell comments at 28; AT&T comments at 53.

[1820] *See, e.g.*, Bell Atlantic comments at 39; Rural Tel. Coalition comments at 22; Wyoming Commission comments at 31; Alaska Commission comments at 2-3.

[1821] *See, e.g.*, ALTS comments at 35; Time Warner comments at 54-55; Washington Independent Tel. Ass'n comments at 6-7; Ohio Commission comments at 50.

[1822] *See, e.g.*, Cincinnati Bell comments at 28; Colorado Independent Tel. Ass'n comments at 4; Illinois Ind. Ass'n comments at 5; Lincoln Tel. comments at 17; Matanuska Tel. comments at 4; Rural Tel. Coalition comments at 22, 28-29; SBA comments at 16; TDS comments at 22.

[1823] Ameritech comments at 61.

[1824] *See, e.g.*, Frontier comments at 22; Lincoln Tel. comments at 14-15; MECA comments at 47; Pennsylvania Commission comments at 31; Telecommunications Resellers Ass'n comments at 41.

inefficiently at the maximum, and removes incentives for upgrading network technology.[1825] Moreover, any such price ceiling would have to be set as high as the reasonable price for the highest cost company or be challenged as confiscatory when higher cost LECs are unable to recover their costs.[1826] In addition, the Texas Public Utility Counsel notes that floors impair the ability of competition to reveal how low costs really are.[1827]

776. Many parties agree, however, that if the Commission establishes pricing guidelines it should use an "outer bounds" pricing approach or require pricing within a zone of reasonableness.[1828] Others support an "outer bounds" if the Commission ensures that states will have sufficient leeway to accommodate state-specific situations,[1829] and the range of reasonableness is not so circumscribed as to reduce the range to the equivalent of a price point.[1830] They argue that establishing separate floors and ceilings enables the Commission to set absolute boundaries that frame the debate with the incumbent LEC concerning relevant costs and prices during negotiations and ultimately arbitration, while giving states flexibility to address state-specific costing issues.[1831] Parties assert that calculation of a perfectly correct, single price is impossible and that cost boundaries allow states to choose an acceptable pricing result with a range of reasonable rates.[1832] Several parties agree that the Commission should establish a presumptive rate ceiling, and that rates exceeding the ceiling should be presumed unlawful.[1833] USTA contends that, if the Commission adopts rate ceilings, such ceilings should indicate levels above which rates must be further justified.[1834]

[1825] *See, e.g.*, NYNEX comments at 57; Frontier comments at 22-23; Lincoln Tel. comments at 14-15; AT&T comments at 52-53; TDS comments at 22.

[1826] Oregon Commission comments at 29-30; *see also* GVNW comments at 38-39.

[1827] Texas Public Utility Counsel comments at 33.

[1828] *See, e.g.*, Ad Hoc Telecommunications Users Committee comments at 48; BellSouth comments at 55; Cox comments at 24; GSA/DoD comments at 8; NEXTLINK comments at 27-28; SBC comments at 93; USTA comments at 38; WinStar comments at 31; NCTA reply at 18.

[1829] *See, e.g.*, Kentucky Commission comments at 5; Ohio Consumers' Counsel comments at 29; Puerto Rico Tel. comments at 10-11; Washington Commission comments at 26.

[1830] *See, e.g.*, BellSouth comments at 55.

[1831] *See, e.g.*, GSA/DoD comments at 8; Cox comments at 24, reply at 30-31; NEXTLINK comments at 27-28.

[1832] *See, e.g.*, Rural Tel. Coalition comments at 30.

[1833] *See, e.g.*, ACSI comments at 56; Bell Atlantic comments at 39-40; Cincinnati Bell comments at 27, 30; MCI comments at 60; PacTel comments at 73-74; Texas Public Utility Counsel comments at 28-29.

[1834] USTA comments at 50.

Ameritech maintains that floors should be used only as a benchmark below which rates may not be set in order to guard against cross-subsidization and predatory pricing.[1835]

777. *Generic Cost Models.* Several generic forward-looking cost models were introduced into the record. These are discussed in Section VII.C.3. below.

778. *Nationally-Averaged Costs.* Although a few commenters support the use of nationally-averaged costs as a proxy to establish the rates for interconnection and unbundled network elements,[1836] many more parties oppose the use of such nationally-averaged cost data.[1837] These parties argue that nationally-averaged data ignore geographically divergent factors and the interests of small or rural LECs, do not account for variance of cost between incumbent LECs, and do not reflect the true cost of the service.[1838] No nationally-averaged cost studies were introduced into the record.

779. *Existing Interconnection Agreements.* Generally, commenters oppose the use of rates in existing interconnection agreements as a proxy-based ceiling for interconnection and unbundled element rates.[1839] These parties argue that, because the agreements are the subject of the negotiation between two carriers with their own particular characteristics and needs, such agreements are likely to be inconsistent and not cost-based, may not be based on the pricing standards codified at 252(d), and the services covered by these agreements may not be those that entrants need to purchase.[1840] A few parties express qualified support for a proxy based on the rates in existing interconnection agreements between incumbent

[1835] Ameritech comments at 73; *see also* GSA/DoD comments at 8; Ohio Consumers' Counsel comments at 28; TDS comments at 20.

[1836] *See, e.g.*, MECA comments at 47; PacTel comments at 74; Sprint comments at 55; *see also* ACSI comments at 56.

[1837] *See, e.g.*, Ad Hoc Telecommunications Users Committee comments at 49-50; Bay Springs *et al.* comments at 17; Cincinnati Bell comments at 28; Colorado Independent. Tel. Ass'n comments at 4; Florida Commission comments at 29; Illinois Independent Tel. Ass'n comments at 5-6; Lincoln Tel. comments at 15-16; Telecommunications Resellers Ass'n comments at 41.

[1838] *See, e.g.*, Ad Hoc Telecommunications Users Committee comments at 49; Bay Springs *et al.* comments at 17; Cincinnati Bell comments at 28; GVNW comments at 31-38.

[1839] *See, e.g.*, ACSI comments at 58; Ad Hoc Telecommunications Users comments at 52; Cincinnati Bell comments at 28-29; Colorado Commission comments at 43; Florida Commission comments at 30; MCI comments at 70; Telecommunications Resellers Ass'n comments at 41.

[1840] *See, e.g.,* Ad Hoc Telecommunications Users Committee comments at 52; Florida Commission comments at 30; Telecommunications Resellers Ass'n comments at 41; Time Warner comments at 55.

LECs, arguing that such rates have already been scrutinized and determined to be just and reasonable.[1841] WinStar cautions that the Commission should not use the rates contained in the existing interconnection agreements between incumbent LECs and CMRS providers or other new entrants as a proxy ceiling because they were negotiated by parties with unequal bargaining power.[1842]

780. *Interstate Access.* A number of parties support the use of a proxy based on existing interstate access charges, claiming that it is easy to apply, based on cost, and would be self-correcting as the access reform and universal service proceedings remove subsidies from access rates.[1843] ALLTEL further maintains that if access charges are used, there should be no requirement for small and mid-sized LECs to produce cost studies that could hamper their interconnection negotiations.[1844] USTA further argues that such proxies are important to all LECs, but are especially important for rural, small, and mid-sized LECs subject to the two percent waiver process, who should not be subjected to the burden of producing expensive and time-consuming cost studies.[1845] Several parties note that some access charges may need to be adjusted or converted to reflect the characteristics of particular unbundled service offerings.[1846] Others oppose the development of a proxy-based ceiling derived from existing interstate access rates, because access charges are based on historical, rather than economic, costs, and contain inordinate amounts of contribution.[1847] These commenters note that setting rates for other elements that could not be derived from access rates would involve application of different proxies,[1848] and the intrastate and interstate rates associated with common lines are applied in different ways to different categories and

[1841] *See, e.g.*, Bell Atlantic comments at 39-40; Ohio Consumers' Counsel comments at 28-29; PacTel reply at 34-35; Pennsylvania Commission comments at 31; Texas Commission comments at 24-25; WinStar comments at 32.

[1842] WinStar comments at 34;*see also* Telecommunications Resellers Ass'n comments at 41; ACSI comments at 58.

[1843] *See, e.g.*, ALLTEL comments at 10-11; Bell Atlantic comments at 39-40, 56; BellSouth comments at 56; Cincinnati Bell comments at 29; SBC comments at 94; USTA comments at 54, reply at 28.

[1844] ALLTEL comments at 11.

[1845] USTA reply at 27-28.

[1846] *See, e.g.*, Cincinnati Bell at 30; SBC comments at 95; USTA comments at 54.

[1847] *See, e.g.*, ACSI comments at 58; Ad Hoc Telecommunications Users Committee comments at 52-53; Colorado Commission comments at 43; Frontier comments at 23; Lincoln Tel. comments at 15-16; MCI comments at 70; MFS comments at 57 n.66.

[1848] *See, e.g.*, Ad Hoc Telecommunications Users Committee comments at 52-53.

classes of customers.[1849] NYNEX argues access charges were designed for a different purpose than interconnection and unbundled elements and therefore would be inappropriate proxies.[1850]

781. In addition, several parties assert that a proxy based on access charges should include all or part of the CCLC or TIC, because otherwise it would be impossible to determine whether an appropriate amount of joint and common costs would be recovered, and IXCs would be able to reconstruct access through unbundled elements priced less than access.[1851] GVNW argues that the TIC is particularly important for small LECs that are not allowed to charge a rate that more accurately reflects their tandem switched transport costs.[1852] On the other hand, several commenters argue that the CCLC and TIC should be excluded,[1853] and WinStar further maintains that, even without those elements, access charge rates would still be too high to serve as a proxy ceiling.[1854]

c. Discussion

782. We adopt, in the section below, default proxies for particular network elements. We believe that these default proxies generally will result in reasonable price ceilings or price ranges and, for administrative and practical reasons, will be beneficial to the states in conducting initial rate arbitrations, especially in the time period prior to completion of a cost study. The proxies we adopt are designed to approximate prices that will enable competitors to enter the local exchange market swiftly and efficiently and will constrain the incumbent LECs' ability to preclude efficient entry by manipulating the allocation of common costs among services and elements. States that utilize the default proxies we establish to set prices in an arbitration should revise those prices on a going-forward basis when they are able to utilize the preferred economic costing methodology we describe in Section VII.B.2.a. above, or if we subsequently adopt new proxies.[1855]

[1849] *See, e.g.*, NYNEX comments at 59-60.

[1850] NYNEX comments at 58-59.

[1851] *See, e.g.*, Cincinnati Bell comments at 29; NYNEX comments at 59; Texas Commission comments at 25; USTA comments at 51-53.

[1852] GVNW comments at 39.

[1853] *See, e.g.*, Sprint comments at 58; Texas Public Utility Counsel comments at 30-32; WinStar comments at 36-37.

[1854] WinStar comments at 36-37.

[1855] *See infra*, Section VII.C.3., discussing generic cost models.

783. We have considered the economic impact of the adoption of default proxy ceilings and ranges on small entities, including new entrants and small incumbent LECs.[1856] The adoption of proxies for interim arbitrated rates should minimize regulatory burdens on the parties to arbitration, including small entities seeking to enter the local exchange markets and small incumbent LECs, by permitting states to implement the 1996 Act more quickly and facilitating competition on a reasonable and efficient basis by all firms in the industry. We therefore believe that the adoption of default proxy ranges and ceilings advances the pro-competitive goals of the 1996 Act. We also note that certain small incumbent LECs are not subject to our rules under section 251(f)(1) of the 1996 Act, unless otherwise determined by a state commission, and certain other small incumbent LECs may seek relief from their state commissions from our rules under section 251(f)(2) of the 1996 Act.[1857]

784. The proxies that we establish represent the price ceiling or price ranges for the particular element on an averaged basis. In Section VII.B.3.c. above, we required that rates be set on a geographically-deaveraged basis. Consequently, states utilizing the proxies shall set rates such that the average rate for the particular element in a study area does not exceed the applicable proxy ceiling or lie outside the proxy range.

785. We reject the use of rates in interconnection agreements that predate the 1996 Act as a proxy-based ceiling for interconnection and unbundled element rates.[1858] These existing interconnection agreements were not reached in a competitive market environment. Further, such agreements may reflect the divergent bargaining power of the parties to the agreement, various public policy initiatives to advance rural telephone service, or non-monetary *quid pro quo*s often found in voluntarily negotiated business arrangements that may be difficult to quantify. There is little basis for us to conclude that rates in these interconnection agreements reflect the forward-looking, incremental cost of interconnection and unbundled network elements. Prices in agreements reached since the 1996 Act are more likely than prior agreements to provide useful information about forward-looking costs, which together with other information may be useful in establishing proxies.

786. In the NPRM, we also raised the issue of using some measure of nationally-averaged cost data as a proxy.[1859] No such study has been submitted into the record in this proceeding.

[1856] *See* Regulatory Flexibility Act, 5 U.S.C. §§ 601 *et seq.*

[1857] 47 U.S.C. § 251(f).

[1858] *See* discussion *supra*, Section III.C., concerning the applicability of section 252 to preexisting agreements.

[1859] NPRM at para. 137.

2. Proxies for Specific Elements

a. Overview

787. Although we encourage states to use an economic cost methodology to set rates for interconnection, unbundled network elements, and collocation, we will permit states unable to analyze an economic costing study within the statutory time constraints to use default proxies in setting and reviewing rates. We set forth below the default proxies for specific network elements. These proxies are interim only. They will apply only until a state sets rates in arbitrations on the basis of an economic cost study, or until we promulgate new proxies based on economic cost models.[1860] We also set forth below the rate structure rules that apply to each of network elements. These rate structure requirements are applicable regardless of whether a state uses an economic cost study or the proxy approach to set rate levels.

b. Discussion

(1) Loops

(a) Comments

788. A number of commenters assert that unbundled loops, in particular, are dedicated facilities, and therefore should be priced on a flat-rated basis.[1861] Sprint suggests that prices for unbundled loops not depend on minutes of use, but rather distance.[1862] MFS urges the Commission to preempt a Texas statute that, it contends, requires incumbent LECs to price unbundled loops on a usage-sensitive basis.[1863]

(b) Discussion

789. Most loop costs are associated with a single customer.[1864] Outside plant between a customer's premises and ports on incumbent LEC switches is typically either physically separate for each individual customer, or has costs that can easily be apportioned among users. We therefore conclude that

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[1860] *See infra*, Section VII.C.3., discussing generic cost models.

[1861] *See, e.g.*, CompTel comments at 36; Florida Commission comments at 31; MFS comments at 62; *see also* AT&T comments at 67; GSA/DoD comments at 10.

[1862] Sprint comments at 62.

[1863] MFS comments at 62.

[1864] *See MTS and WATS Market Structure*, CC Docket No. 78-72, Phase I, Third Report and Order, 93 FCC 2d 241, 291-297 (1983).

costs associated with unbundled loops should be recovered on a flat-rated basis. Usage-based rates for an unbundled loop would most likely translate into usage-based rates for new entrants' retail local customers. A retail usage-based rate would distort incentives for efficient use. Customers that had to pay a usage charge would have an incentive not to use the network in situations where the benefit of using the network exceeds the true cost of using the network. Usage-based loop prices would put an entrant at an artificial cost disadvantage when competing for high-volume customers.[1865]

790. In general, we believe that states should use a TELRIC methodology to establish geographically deaveraged, flat-rate charges for access to unbundled loops. As discussed above, however, we recognize that, in some cases, it may not be possible for carriers to prepare, or for state commissions to review, economic cost studies within the statutory time frame for arbitration proceedings. Because reviewing and approving such cost studies takes time and because many states have not yet begun, or have only recently begun, to develop and examine such studies, it is critical for the near-term development of local competition to have proxies that provide an approximation of forward-looking economic costs and can be used by states almost immediately. These proxies would be used by a state commission until it is able either to complete a cost study or to evaluate and adopt the results of a study or studies submitted in the record. In an NPRM to be issued shortly, we will investigate more fully various long-run incremental cost models in the record with an eye to developing a model that can be used to generate proxies for the forward looking economic costs of network elements. Until such time as we can develop such a model, we have developed the following default proxy ceilings that state commissions that have not completed forward looking economic cost studies may use in the interim as an approximation to the forward looking cost of the local loop.

791. State commissions may use this proxy to derive a maximum (or ceiling) loop rate for each incumbent LEC operating within their state, and may establish actual unbundled loop rates at any level less than or equal to this maximum rate in specific arbitrations or other proceedings. Of course, we are encouraging states to have economic studies completed wherever feasible. Moreover, states will have to replace this proxy ceiling with the results of their own forward looking economic cost study or the results produced by a generic economic cost model that the Commission has approved.[1866]

792. We are adopting a proxy ceiling based on two cost models and rates for unbundled loops allowed by six states that had available to them the results of forward-looking economic cost studies at the

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[1865] We note that MFS has filed a separate petition asking the Commission to preempt certain provisions of the Texas statute, which it contends requires incumbent LECs to sell unbundled local loops on a usage-sensitive basis. *See* Public Notice, *Petition for Preemption of Local Entry Barriers Pursuant to Section 253*, 11 FCC Rcd 6578 (Com. Car. Bur. 1996) (*MFS Texas Petition*). We will rule specifically on the Texas statute when we consider the *MFS Texas Petition.*

[1866] *See infra*, Section VII.C.3., discussing generic cost models.

time they considered either interim or permanent rates for the unbundled loop element. These states are Colorado, Connecticut, Florida, Illinois, Michigan, and Oregon. Each of these states has used a standard that appears to be reasonably close to the forward-looking economic cost methodology that we require to be used, although possibly not consistent in every detail with our TELRIC methodology.[1867] Generally, these states appear to have included an allocation of forward-looking common costs in their unbundled loop prices. The individual state studies resulted in the following average rates for unbundled local loops: Colorado, $18; Connecticut, $12.95; Florida, $17.28; Illinois, $10.93; Michigan, $10.03; and Oregon, $12.45, computed as set forth below.

793. The Colorado Commission set an interim rate of $18 per month for unbundled loops terminated at the main distribution frame of the LEC switch.[1868] The Connecticut Commission ruled that SNET must provide the following interim unbundled loop prices varying by four zones: metro $10.18; urban $11.33; suburban $15.33; and rural $14.97.[1869] In the absence of further information about customer density or average loop length by zone, we used a simple average equal to $12.95. The Florida Commission set an interim rate for 2-wire loops at $17.00 per month for BellSouth, $15.00 for

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[1867] *See In re: US West Communications, Inc. Filing of Advice Letter No. 2610 In Compliance with Commission Decision No. C96-521 Adopting Emergency Rules (Tariff)*, Docket No. 96S-233T, Decision No. C96-655 (Colorado Commission, June 21, 1996)["*Colorado Decision*"] at 58-64 (interim unbundled loop prices set after review of TSLRIC cost studies); *Re Southern New England Telephone Company*, Order No. 95-06-17, 1995 WL 803837 (Conn. D.P.U.C., December 20, 1995)["*Connecticut Decision*"] at 9-10, 72 (same); *In re: application of City Signal, Inc., for an order establishing and approving interconnection arrangements with Ameritech Michigan*, Case No. U-10647 (Michigan Commission, February 23, 1995) ["*Michigan Decision*"] at 32, 56-57 (setting interim unbundled loop rates based on estimated TSLRIC costs); *In Re: Resolution of petition(s) to establish nondiscriminatory rates, terms and conditions for resale involving local exchange companies and alternative local exchange companies and alternative local exchanges companies pursuant to Section 364.161, Florida Statutes*, Docket No. 950984-TP, Order No. PSC-96-0444-FOF-TP, (Florida Commission, March 29, 1996)["*Florida Decision I*"] at 16 (interim unbundled loop prices set with reference to BellSouth cost studies); *In Re: Resolution of petition(s) to establish nondiscriminatory rates, terms and conditions for resale involving local exchange companies and alternative local exchange companies and alternative local exchanges companies pursuant to Section 364.161, Florida Statutes*, Docket No. 950981-TP, Order No. PSC-96-0811-FOF-TP (Florida Commission, June 24, 1996)["*Florida Decision II*"] at 25-26 (setting rates after review of GTE and United/Centel cost studies); *In re: Investigation into the Cost of Providing Telecommunications Services*, Order No. 96-188, (Oregon Commission, July 19, 1996)["*Oregon Decision*"] at 78 n.61 (interim unbundled loop prices generally based on LRIC estimates plus applicable group related costs, and an additional contribution for recovery of joint and common costs); *Illinois Bell Telephone Company Proposed introduction of a trial of Ameritech's Customers First Plan in Illinois*, Docket Nos. 94-0096/94-0117/94-0146/94-0301 (Illinois Commission, April 7, 1995)["*Customers First* Order"] at 54, 61 (rates set with reference to Ameritech's LRSIC studies).

[1868] *Colorado Decision* at 66.

[1869] *Connecticut Decision* at 74.

United/Centel, and $20.00 for GTE.[1870] Using weights equal to the number of loops served by each company in 1994 as reported in the Monitoring Report,[1871] we computed a weighted average price equal to $17.28. Pursuant to its *Customers First* Order, the Illinois Commerce Commission approved tariffs establishing business rates equal to $7.08, $10.92, and $14.45, and residential rates equal to $4.59, $8.67, and $12.14 in three density zones.[1872] Based on data from Table 2.5, page 20 of the Common Carrier Statistics, 1995 Preliminary, we found a 36 percent - 64 percent business residential split. Using Illinois Commission data for number of households in each density zone (996,750 in zone A; 2,788,759 in zone B; 4,594,567 in zone C), we computed an average loop cost of $10.93. The Michigan Commission approved transitional rates of $8.00 per loop for business and $11 per loop for residence.[1873] Based on Common Carrier Statistics, 1995 Preliminary data, we computed a 32 percent - 68 percent business-residential split in Michigan, which leads to an average rate of $10.03. The Oregon Commission set the rate for a "basic 2-wire loop set" at $11.95 plus $0.50 for a network access channel connection, for a total price of $12.45.[1874]

794. In order to set a proxy ceiling for unbundled loop elements we make use of the two cost models for which nationwide data are available and upon which parties have had the opportunity to comment in this proceeding. These models are the Benchmark Cost Model (*BCM*)[1875] and the *Hatfield 2.2*.[1876] Based on our current information, we believe that both these models are based on detailed engineering and demographic assumptions that vary among states, and that the outputs of these models represent sufficiently reasonable predictions of relative cost differences among states to be used as set forth below to set a proxy ceiling on unbundled loop prices for each state. We do not believe, however, that these model outputs by themselves necessarily represent accurate estimates of the absolute magnitude of

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[1870] *Florida Decision I* at 19; *Florida Decision II* at 25-26.

[1871] Monitoring Report, CC Docket No. 87-339, May 1996 (listing the following number of loops by company: GTE, 1,909,172; United/Centel, 1,627,314; BellSouth, 5,328,280).

[1872] *See* Ameritech Tariff, Ill. C.C. No. 20, Part 19, Section 1, issued October 23, 1995.

[1873] *Michigan Decision* at 94.

[1874] *Oregon Decision* at Appendix C, p.1.

[1875] *Benchmark Cost Model: A Joint Submission by MCI Communications, Inc., NYNEX Corporation, Sprint Corporation, U S West, Inc.* (December 1995), submitted by MCI Communications, Inc., NYNEX Corp., Sprint/United Management Corp., U S West, Inc. on July 24, 1996 (*BCM*). For a more detailed discussion of the *BCM*, *see infra*, Section VII.C.3.

[1876] *Hatfield Model, Version 2.2, Release 1* (Hatfield Associates, Inc., March 1996), submitted by AT&T and MCI on May 16, 1996 (*Hatfield 2.2*); *see also* AT&T reply at Appendix D (Update of the Hatfield Model Version 2.2, Release 1). *See infra*, Section VII.C.3, for a more detailed discussion of the various versions of the *Hatfield* model.

loop costs. As we discuss below, further analysis is necessary in order to evaluate fully the procedures and input assumptions that the models use in order to derive cost estimates. Furthermore, in the case of *BCM*, model outputs include costs in addition to the cost of the local loop. In order to correct for these considerations, we have developed a hybrid cost proxy in the following manner. First, we have applied a scaling factor to the cost estimates of each model. This scaling is based on the actual rates computed for unbundled loop elements in the six states referred to above. Specifically we have multiplied the cost estimate produced by each model in each state by a factor equal to the unweighted average of rates adopted by state commissions in the six states, divided by the unweighted average of the model cost estimates for the same six states. Our hybrid cost proxy is computed as the simple average of the scaled cost estimates for the two models in each of the 48 contiguous states and the District of Columbia. Neither *BCM* nor *Hatfield 2.2* provide cost estimates for Alaska and only the *BCM* provides an estimate for Hawaii. Our default loop cost proxies for Hawaii and Puerto Rico are based on the default loop cost proxies of the states that most closely approximate them in population density per square mile.[1877] We are not setting default loop cost proxies in this Order for Alaska or for any of the remaining non-contiguous areas subject to the 1996 Act requirement that incumbent LECs offer unbundled loop elements. We are not establishing default loop cost proxies for these areas because we are unsure that comparisons of the population densities of the continental states and of Alaska and other non-contiguous areas subject to the 1996 Act fully capture differences in loop costs. Regulatory authorities in those areas may seek assistance from this Commission should default loop cost proxies be needed before they have completed their investigations of the forward-looking costs of providing unbundled loop elements. Since our intention is to establish a ceiling for unbundled loop rates, we believe that it is necessary to take account of the variation in the data that we have used for scaling. While the six states that we considered appear to have based their rates on forward-looking economic cost pricing principles, the actual rates that they approved appear to reflect other factors as well. Furthermore, because only a small number of states have conducted such studies, some upward adjustment is warranted as a safety margin to ensure that the ceiling captures the variation in forward-looking economic costing prices on a state-by-state basis. We have therefore chosen to adjust the hybrid cost estimates upward by five percent for each state. A table listing the proxy ceilings on a statewide average basis is contained in Appendix D.

795. A number of parties have opposed the use of either the *Hatfield* model or *BCM*.[1878] Some critics, for example, have argued that the models may lead to inaccurate cost estimates since these estimates

[1877] There is a strong (negative) correlation between population density and the loop costs reported by all the cost models. The correlation is significant at the 5% level. Population densities are from The Statistical Abstract of the United States 1995, Table Number 23. For Puerto Rico, land area is from Table 361 and population is from Table 1345.

[1878] For a more detailed discussion of these generic cost models, *see infra*, Section VII.C.3.

assume that a network is built "from scratch."[1879] Others have criticized specific procedures that have been used in the models to estimate both operating expenses and capital costs. As discussed below in Section VII.C.3., we believe that these criticisms may have merit. In a future rulemaking proceeding, we intend to examine in greater detail various forward looking economic cost models. For the purposes of setting an interim proxy, however, we note that the criticisms have been directed largely toward the absolute level of cost estimates produced by the models, rather than the relative cost estimates across states. Since our hybrid proxy ceiling explicitly scales the model cost estimates based on existing state decisions and uses the model results simply to compute relative prices, we believe that these criticisms do not apply in the present context.

796. We also note that a third model, the *BCM 2*,[1880] could have been used in the construction of our interim cost proxy by simply taking the scaled cost estimates from three cost models instead of two. We have chosen not to follow this approach since parties have not had an opportunity to comment on the possible deficiencies of the *BCM 2*. For comparison purposes, however, we have computed the corresponding ceiling cost estimates, and have found that the scaled costs using the three model proxy are very similar to the estimated costs that were derived using the two models.[1881]

797. As discussed above, we believe that cost-based rates should be implemented on a geographically deaveraged basis. We allow states to determine the number of density zones within the state, provided that they designate at least three zones, but require that in all cases the weighted average of unbundled loop prices, with weights equal to the number of loops in each zone, should be less than the proxy ceiling set for the statewide average loop cost set forth in Appendix D.

798. As noted above, we have not yet had sufficient time to evaluate fully any of the cost models that have been submitted in the record, and our hybrid proxy is therefore intended to be used only on an interim basis. We believe that the methodology is consistent with forward-looking cost studies, but we also recognize that there may be situations in which forward looking loop costs will differ from computed costs, and accordingly, we have increased the state average loop costs by five percent and established the proxy as a ceiling. We emphasize that use of the hybrid proxy model can be superseded at any time by a full forward looking economic cost study that follows the guidelines set forth in this order. In addition, we are

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[1879] *See, e.g.*, Florida Commission comments at 28-29; USTA comments at 54 n.45; Rural Tel. Coalition reply at 35.

[1880] *Benchmark Cost Model 2* (July 1996), submitted by Sprint Corp. and U S West, Inc., on July 24, 1996 (*BCM 2*). For a more detailed discussion of this generic cost model, *see infra*, Section VII.C.3.

[1881] The coefficient of correlation is 0.991. Since the models are deterministic, this correlation does not reflect any relevant statistical properties of the models.

currently in the process of evaluating the more detailed cost models that have been submitted in the record,[1882] and will issue a further notice on the use of these models in the near future.

(2) Local Switching

(a) Comments

799. Several IXCs propose that local switching rates be part flat-rated and part usage-sensitive. LDDS argues that the price of the unbundled switching element should reflect as closely as possible the manner in which switching costs are incurred. It believes that line-related costs should be recovered through a flat per-line capacity charge, based on a contracted-for number of lines, with an additional usage-based trunking port charge and a combination of per-line and usage-based charges to recover busy hour related costs.[1883] AT&T similarly argues that switching rates should be based on a capacity charge for line-specific costs plus a usage sensitive charge based on calling volume.[1884] MCI states that switching costs are a function of line connections, trunk connections, and busy hour demand on the switch matrix and processor. Hence, the rate for the switching element should have a sub-element price relating to each sub-element, set to recover the associated TSLRIC.[1885] Sprint, on the other hand, contends that the charge for the local switching element should consist of two flat-rated charges, one based on the number of interconnector lines receiving dedicated access to the first point of concentration in the switch, and the second on the number of links between the termination equipment and the switch that an interconnector has ordered to provide it with switching capacity at its desired grade of service.[1886] CompTel argues that trunk port charges should be usage sensitive because trunk ports are used by multiple parties and that the network element for end-office serving wire center (provided by tandem switching) should be priced on a per minute basis.[1887]

800. Time Warner argues that pricing switched-based network elements on a flat-rated basis could give non-facilities-based competitors artificially created cost advantages over those who choose to

[1882] For a more detailed discussion of the cost models submitted in this docket, *see infra,* Section VII.C.3.

[1883] LDDS comments at 57.

[1884] AT&T comments at 68.

[1885] MCI comments at 30.

[1886] Sprint comments at 35, 62.

[1887] CompTel comments at 36, 45.

invest in the development of competing networks.[1888] It also argues that nothing in the 1996 Act suggests that switches should not be priced based on a per-use basis rather than a per-line or per-partitioned portion of the switch basis.[1889] NEXTLINK supports the use of rate structures that reflect peak and off-peak costs, but notes that the advantage of such structures must be balanced against the disadvantages of complexity and possible disputes that could arise with regard to more complex billing systems.[1890] The Washington Commission notes that the switched access price structure for interexchange access is usage sensitive, but it states that usage-sensitive pricing structures for switched access are inappropriate for local interconnection services in Washington because state law prohibits mandatory measured local service. To the extent that network element costs are driven by peak demand, the Washington Commission states that rates should reflect that tendency. It would prefer to see rate structures that more accurately reflect peak, rather than average demand and has expressed a strong interest in flat-rated port charges. The Washington Commission states that a flat rate based upon cost of providing capacity at peak load is possibly the most economically correct pricing mechanism; off-peak usage then is at virtually zero cost.[1891]

801. LDDS and AT&T argue that there should be no additional charges for vertical features provided by the switch, as the cost of providing those features should already be reflected in the charge for unbundled local switching.[1892] MCI has a similar view, arguing that, because incumbent LECs do not incur the cost of vertical features on a usage basis, custom calling features should be included in the price for unbundled local switching.[1893]

802. Incumbent LECs and Sprint, however, argue that vertical features are retail services offered to end users today, and must be purchased by the competitor under the wholesale rate provision of the 1996 Act.[1894] In making that argument, however, Sprint notes that although it is not technically feasible to unbundle vertical services the costs of such services can be identified and should be excluded from the price of the local switching element.[1895] Bell Atlantic notes that services currently sold at a loss are subsidized by

[1888] Time Warner comments at 59.

[1889] Time Warner comments at 59.

[1890] NEXTLINK comments at 30.

[1891] Washington Commission comments at 29-30.

[1892] AT&T comments at 21 n.22; LDDS comments at 56-57.

[1893] MCI comments at 31.

[1894] *See, e.g.*, SBC comments at 38; Sprint comments at 36-37.

[1895] Sprint comments at 37 n.15.

vertical service offerings. It asserts that, if these offerings were treated as unbundled elements that must be provided at cost instead of wholesale retail services, then a serious takings issue would arise.[1896] ALLTEL contends that the Commission should not permit the 1996 Act's resale price standards to be undercut by carriers attempting to mimic LEC networks by assembling unbundled elements obtained at below cost prices.[1897] USTA contends that section 251(c) does not allow carriers to assemble unbundled network elements to reconstruct and provide retail services offered by the incumbent LECs.[1898] The Competition Policy Institute argues in response, that the existence of unbundled network elements should not be presumed to be a substitute for a resold service.[1899] NYNEX argues that a competitor should not be allowed to obtain resold local exchange service and ask for vertical features at cost-based rates. It argues that the two competitive vehicles were intended to meet different strategic needs; they were not intended to provide opportunities for arbitrage.[1900]

803. Several commenters included estimates of the cost for end-office switching. MCI provides an estimate of the cost of end-office switching as calculated by the *Hatfield 2* model.[1901] Using the least cost, most efficient technology available in the market at the time, MCI estimates that the TSLRIC of end-office switching is equal to 0.18 cents ($0.0018) per minute of use.[1902] AT&T provides an updated version of the *Hatfield 2* model, the *Hatfield 2.2*, which treats the incumbent LECs' current wire center locations as "fixed" nodes in a reconstructed network.[1903] Cox reports that the *Hatfield 2.2* model estimates that average TSLRIC of end office switching for most states clusters around 0.2 cents ($0.002) per minute of use.[1904]

[1896] Bell Atlantic reply at Exhibit 2 (Declaration of Richard A. Epstein), p.7.

[1897] ALLTEL reply at 7.

[1898] USTA reply at 8.

[1899] Competition Policy Institute comments at 26.

[1900] NYNEX comments at 30, 36, 39.

[1901] MCI comments at Attachment 1, "The Cost of Basic Network Elements, Theory, Modeling, and Policy Implications," prepared for MCI by Hatfield Assoc., Inc.

[1902] *Id*. at 34; *see also* NCTA comments at Attachment 1 (Declaration of Bruce M. Owen), p. 34-35 (converting the *Hatfield 2* estimate for end-office switching and switch port costs into a per minute rate of 0.26 cents).

[1903] *Hatfield Model, Version 2.2, Release 1* (Hatfield Associates, Inc., March 1996), submitted by AT&T and MCI on May 16, 1996 (*Hatfield 2.2*); *see also* AT&T reply at Appendix D (Update of the Hatfield Model Version 2.2, Release 1), p.1-3.

[1904] Letter from J.G. Harrington, Dow, Lohnes & Albertson, on behalf of Cox Communications, to William F. Caton, Acting Secretary, FCC, June 20, 1996, in CC Docket No. 95-185, at Tab 2 (Review of Record on LEC Local transport

804. GTE criticizes the *Hatfield 2.2* model and its assumptions, arguing that the Hatfield model suffers from serious inaccuracies and produces results that are inconsistent with what can actually be observed.[1905] GTE reports that the Cost Proxy Model, which was submitted by Pacific Telesis,[1906] estimates the average cost of routing traffic through end-office switches is equal to 0.35 cents ($0.0035) per minute of use.[1907]

805. In pleadings filed in the *LEC-CMRS Interconnection* proceeding,[1908] Cox asserts that the average incremental cost of inter-office transport and termination of traffic is 0.2 cents ($0.002) per minute of use.[1909] In the same proceeding, U S West argues that Cox's estimate of 0.2 cents per minute of use ignores the large differential between the costs of terminating calls during peak and off-peak hours.[1910] USTA claims that the average incremental cost of call termination is 1.3 cents ($0.013) per minute of use.[1911]

806. In response to the *LEC-CMRS Interconnection NPRM,* many commenters assert that the majority of CMRS providers interconnect with incumbent LEC networks at incumbent LECs' tandem offices.[1912] U S West asserts that Cox's estimate of 0.2 cents ($0.002) per minute of use underestimates the actual cost of transporting and terminating traffic, and claims that, using the same data and methodology as

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and Termination Costs Finding from LEC Cost Studies), p.3 (*Cox June 20, 1996 Ex Parte*).

[1905] Letter from Whitney Hatch, Assistant Vice President Regulatory Affairs, GTE, to William F. Caton, Acting Secretary, FCC, July 11, 1996 at Attachment 2 (Economic Evaluation of Version 2.2 of the Hatfield Model).

[1906] *The Cost Proxy Model* (INDETEC International, 1996), submitted by Pacific Telesis Group on June 7, 1996 (*CPM*).

[1907] Letter from Whitney Hatch, Assistant Vice President Regulatory Affairs, GTE, to William F. Caton, Acting Secretary, FCC, July 11, 1996 at Attachment 2 (Economic Evaluation of Version 2.2 of the Hatfield Model), pp.16-17.

[1908] *Interconnection Between Local Exchange Carriers and Commercial Mobile Radio Service Providers*, CC Docket No. 95-185, Notice of Proposed Rulemaking, 11 FCC Rcd 5020, 5038 (1996) (*LEC -CMRS Interconnection NPRM*);

[1909] Letter from J.G. Harrington, Dow, Lohnes & Albertson, on behalf of Cox Communications, to William F. Caton, Acting Secretary, FCC, June 20, 1996, in CC Docket No. 95-185 at Tab 2 (Review of Record on LEC Local Transport and Termination Costs Finding from LEC Cost Studies), pp.1-2; *see also* Letter from Robert F. Roche, CTIA, to William F. Caton, Acting Secretary, FCC, December 8, 1995, in CC Docket No. 94-54, (Incremental Cost of Local Usage, Brock Paper No. 3), p.1.

[1910] U S West comments in CC Docket No. 95-185 at Attachment A (A Response to Dr. Gerald Brock), p.13.

[1911] USTA comments in CC Docket No. 95-185 at Attachment (Bill and Keep: A Bad Solution to a Non-Problem), pp.9-10.

[1912] *See, e.g.*, U S West comments in CC Docket No. 95-185 at Attachment A (A Response to Dr. Gerald Brock), p.13.

Cox, the incremental cost of transporting and terminating traffic through the tandem is approximately three times higher than Cox's estimate.[1913] In the same proceeding, AirTouch, relying on 1994 testimony before the Georgia Commission, asserts that the LRIC of transporting and terminating a call through the tandem equals approximately 0.49 cents ($0.0049) for the first minute of a call and 0.12 cents ($0.0012) for each additional minute of use.[1914] This estimate is based on the presumption that it should cost roughly half as much to complete a call interchanged at a tandem switch as it does to both originate and terminate a call entirely on one network.[1915] Pacific Bell, asserts that the average LRIC for termination of calls under "Feature Group B," which appears to include terminations at tandems switches in addition to end-office terminations, equals 0.62 ($0.0062) cents per minute of use.[1916]

807. State commissions, that have set rates for the transport and termination of traffic, generally set rates for terminations where parties interconnect at either the end office or the tandem office.[1917] The Maryland Commission has set reciprocal and symmetrical rates for the transport and termination of traffic based, among other things, on a rate proposal calculated by a staff witness.[1918] In the Maryland proceeding, the actual cost of tandem and end-office switch terminations are considered proprietary and were, therefore, not directly reported, but the staff witness testified that the calculation of direct, shared, and common costs is less than one-half his proposed rate of 0.6 cents ($0.006) per minute of use for terminations routed through the tandem-office switch.[1919] The Maryland Commission ultimately adopted rates of 0.3 cents ($0.003) per minute of use end-office-switch terminations and 0.5 cents ($0.005) per minute of use for terminations at the tandem switch.[1920]

808. The Illinois Commission has adopted a rate equal to 0.5 cents ($0.005) per minute of use for terminations routed directly through end-office switches and 0.75 cents ($0.0075) per minute of use for

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[1913] *Id.*

[1914] AirTouch comments in CC Docket No. 95-185 at 32-33.

[1915] *Id.*

[1916] Pacific Bell comments in CC Docket No. 95-185 at Exhibit B (Statement of Professor Jerry A. Hausman) at p.14.

[1917] *See, e.g.,* Maryland Commission comments at Appendix B (Maryland Commission Order No. 72348, Case No. 8584 Phase II), p.28-32.

[1918] *Id.*

[1919] *Id.* at 29.

[1920] *Id*. at 32.

calls routed through tandem switches.[1921] Illinois's rate includes an element for recovering a "contribution" over and above the long-run service incremental cost of termination.[1922] Illinois arrived at its final rates by identifying the proposed rates that would pass imputation tests.[1923] In Massachusetts, NYNEX testified that the average marginal cost of end-office switching equals 0.129 ($0.00129) cents per minute of use.[1924] Cox reports that the Florida staff, after reviewing local service cost support data filed by GTE and Centel/United, concluded that the sum of the estimated TSLRIC for end-office switching and the LRIC for tandem-office switching and transport equals 0.25 cents ($0.0025) per minute of use.[1925]

809. The peak-period interconnection rates in New York between NYNEX and other facilities-based, full service local exchange providers are set at 0.74 cents ($0.0074) per minute of use (end office) and 0.98 cents ($0.0098) per minute of use (tandem).[1926] Off-peak rates are 0.27 cents ($0.0027) (end office) and 0.29 cents ($0.0029) (tandem).[1927] The Michigan Commission has established mutual compensation rates of 1.5 cents ($0.015) per minute of use for calls passing directly through an end-office switch or through tandem office switches.[1928]

(b) Discussion

810. We conclude that a combination of a flat-rated charge for line ports, which are dedicated to a single new entrant, and either a flat-rate or per-minute usage charge for the switching matrix and for trunk ports, which constitute shared facilities, best reflects the way costs for unbundled local switching are incurred and is therefore reasonable. We find that there is an insufficient basis in the record to conclude that we should require two flat rates for unbundled local switching charges as proposed by Sprint.

[1921] Illinois Commission comments at Attachment C (Illinois Commerce Commission Docket No. 94.0096), pp.83-86, 98.

[1922] *Id.*

[1923] *Id.* at 85.

[1924] *See* Mass. Commission comments at Attachment 3 (Testimony of Paula L. Brown, Managing Director, NYNEX Corporation, in Massachusetts Dept. of Pub. Util. Docket No. 93-125, Workpaper 2), June 14, 1993, p.6.

[1925] *Cox June 20, 1996 Ex Parte* at 4 (*citing* Florida Docket No. 950985-TP).

[1926] *Competition, The State Experience* at 81 (compilation of written responses by state commission staffs to questions by FCC staff, compiled by NARUC) (March 8, 1996).

[1927] *Id.*

[1928] Michigan Commission comments at Attachment 1 (State of Michigan, Case No. U-10647, Opinion and Order, February 23, 1995), p.28.

811. Based on the record in this proceeding and in the *LEC-CMRS Interconnection* proceeding, we conclude that a range between 0.2 cents ($0.002) per minute of use and 0.4 cents ($0.004) per minute of use for unbundled local switching is a reasonable default proxy. In setting this default price range, we consider the range of evidence in the record, and believe that the most credible studies fall at the lower end of this range.[1929] However, so as to minimize disruption for any state that has set a rate only marginally outside this range, we will grandfather any state that has set a rate at 0.5 cents ($0.005) per minute of use or less pending completion of an economic study pursuant to the methodology set forth in this Order.

812. The forward-looking cost studies contained in the record estimate that the average cost of end-office switching ranges from 0.18 cents ($0.0018) per minute of use[1930] to 0.35 cents ($0.0035) per minute of use.[1931] Maryland and Florida have adopted rates based on forward-looking economic cost studies that fall within the default price range we are adopting.[1932] NYNEX's estimate of 0.129 cents ($0.00129) per minute of use, in the Massachusetts proceeding, is estimate an estimate of the marginal cost of end-office switching.[1933] As discussed above, we generally expect studies estimating marginal costs to generate estimates that are less than estimates derived from TELRIC-based studies. We, therefore, conclude that 0.2 cents ($0.002) per minute of use is a reasonable lower end of the price range for end-office switching.

813. USTA's estimate of 1.3 cents ($0.013) appears to be an outlier that is significantly higher than the other estimates.[1934] We find that USTA's estimate does not represent an appropriate cost model for termination of traffic. USTA's estimate is based on the high end of a set of econometric estimates of LEC-

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[1929] *See, e.g.*, Maryland Commission comments at Appendix B (Maryland Commission Order No. 72348, Case No. 8548 Phase II), p.28-32; Letter from Robert F. Roche, CTIA, to William F. Caton, Acting Secretary, FCC, December 8, 1995, in CC Docket No. 94-54 (Incremental Cost of Local Usage, Brock Paper No. 3), p.1; *Hatfield Model, Version 2.2, Release 1,* (Hatfield Associates, Inc. March 1996), submitted by AT&T and MCI on May 16, 1996; AT&T reply at Appendix D (Update of the Hatfield Model, Version 2.2, Release 1).

[1930] *See* MCI comments at Attachment 1, "The Cost of Basic Network Elements, Theory, Modeling, and Policy Implications," prepared for MCI by Hatfield Assoc., Inc. p.34.

[1931] Letter from Whitney Hatch, Assistant Vice President Regulatory Affairs, GTE, to William F. Caton, Acting Secretary, FCC, July 11, 1996 at Attachment 2 (Economic Evaluation of Version 2.2 of the Hatfield Model), pp.16-17.

[1932] *See* Maryland Commission comments at Appendix B (Maryland Commission Order No. 72348, Case No. 8584 Phase II), pp.28-32;*Cox June 20, 1996 Ex Parte* at 4.

[1933] *See* Mass. Commission comments at Attachment 3 (Testimony of Paula L. Brown, Managing Director, NYNEX Corporation, in Massachusetts Dept. of Pub. Util. Docket No. 93-125, Workpaper 2), p.6.

[1934] USTA comments in CC Docket No. 95-185 at Attachment (Bill and Keep: A Bad Solution to a Non-Problem), pp.9-10.

reported cost data rather than an independent cost estimate, and USTA gives no explanation of why we should regard this as the best estimate. In addition, USTA's figure is derived, at least in part, from studies that attempt to measure the incremental cost of end-to-end use of the network for local calls, not the cost of local switching. Pacific Bell's study of the average LRIC of a call terminating under "Feature Group B" [1935] apparently includes terminations at tandem switches in addition to end-office terminations.

814. Michigan and Illinois have adopted rates for transport and termination of traffic that are higher than the default price range we adopt for end-office switching.[1936] Michigan, which established mutual compensation rates of 1.5 cents ($0.015) per minute of use, did not review a forward-looking cost study.[1937] Illinois's 0.5 cents ($0.005) per minute rate for termination through the end office is just outside the range we are establishing. First, as previously stated, we are grandfathering rates of 0.5 cents ($0.005) per minute or lower. Further, we do not believe Illinois's rate overrides the weight of evidence in the record, which supports the range we are establishing.

815. States that do not calculate the rate for the unbundled local switching element pursuant to a forward-looking economic cost study may, in the interim, set the rate so that the sum of the flat-rated charge for line ports and the product of the projected minutes of use per port and the usage-sensitive charges for switching and trunk ports, all divided by the projected minutes of use, does not exceed 0.4 cents ($0.004) per minute of use and is not lower than 0.2 cents ($0.002) per minute of use. A state may impose a rate for unbundled local switching that is outside this range if it finds that a forward-looking economic cost study shows a higher or lower rate is justified. States that use our proxy and impose flat-rated charges for unbundled local switching should set rates so that the price falls within the range of 0.2 cents ($0.002) per minute of use and 0.4 cents ($0.004) per minute of use if converted through use of a geographically disaggregated average usage factor. A default price range of 0.2 cents ($0.002) per minute of use and 0.4 cents ($0.004) per minute of use should allow carriers the opportunity to recover fully their additional cost of terminating a call including, according to Maryland's study, a reasonable allocation of common costs. We observe that the most credible studies in the record before us fall at the lower end of this range and we encourage states to consider such evidence in their analysis.

816. With respect to the argument that vertical features should be priced pursuant to the resale price standards, we concluded earlier that vertical features are part of the unbundled local switching

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[1935] Pacific Bell comments in CC Docket No. 95-185 at Exhibit B (Submission of Jerry A. Hausman), para. 32.

[1936] Michigan Commission comments at Attachment 1 (State of Michigan, Case No. U-10647, Opinion and Order, February 23, 1995), p.28; Illinois Commission comments at Attachment C (Illinois Commerce Commission Docket No. 94.0096), pp.83-86, 98.

[1937] Michigan Commission comments at Attachment 1 (State of Michigan, Case No. U-10647, Opinion and Order, February 23, 1995), p.28.

element, because they are provided through the operation of hardware and software comprising the "facility" that is the switch.[1938] Accordingly, the pricing standard in 252(d)(1) applies to vertical features as part of the functionality of the switch. As previously discussed, allowing new entrants to purchase switching and vertical features as part of the local switching network element is an integral part of a separate option Congress has provided for new entrants to compete against incumbent LECs.[1939]

817. The 1996 Act establishes different pricing standards for these two options available to new entrants -- resale of services pursuant to section 251(c)(4) and unbundled elements pursuant to section 251(c)(3). Where the new entrant purchases vertical features as part of its purchase of an unbundled local switching element, the price of that element, including associated vertical features, should be determined according to section 252(d)(1). The availability of vertical services as part of a wholesale service offering is distinct from their availability as part of the local switching network element. In these circumstances, allowing the new entrant to combine unbundled elements with wholesale services is an option that is not necessary to permit the new entrant to enter the local market.

818. As to Bell Atlantic's takings argument, we concluded above that the pricing of unbundled elements according to the just and reasonable standard in section 251(c)(2) and (c)(3), and applied in section 252(d)(1), is not an unconstitutional taking.[1940] That analysis, which looks at the overall rates established by our regulations, applies with equal force to the pricing of unbundled local switching, inclusive of associated vertical features. A forward-looking economic cost methodology enables incumbent LECs to recover a fair return on their investments and Bell Atlantic has provided no specific evidence to the contrary. We conclude that our pricing methodology for unbundled local switching, inclusive of associated vertical features, provides just compensation to incumbent LECs.

[1938] *See supra*, Section V.J., discussing unbundled local switching.

[1939] "[I]t is unlikely that competitors will have a fully redundant network in place when they initially offer local service, because the investment necessary is so significant. Some facilities and capabilities . . . will likely need to be obtained from the incumbent [LEC] as network elements pursuant to new section 251." Joint Explanatory Statement at 148.

[1940] *See supra*, Section VII.B.2.a.(3)(c).

(3) Other Elements

(a) Comments

819. AT&T argues that charges for common transport should be usage sensitive, and that signaling links, signal transfer point, and service control point should be priced using a combination of flat-rated capacity charges and usage-sensitive charges.[1941] The Ohio Consumers' Counsel agrees with AT&T about the principles of rate structure, but argues that the specific prescriptions for rate structure proposed by AT&T are unnecessary if the principles are adopted.[1942] Sprint asserts that common transport rates should be per-minute charges that vary with distance.[1943] MCI argues that trunk connection costs should be recovered through a minute-of-use charge.[1944] AT&T argues that dedicated transport rates should be non-usage sensitive.[1945]

(b) Discussion

820. The primary categories of network elements identified in this Order, other than loops and switching, are transport, signaling, and collocation. Our rule that dedicated facilities shall be priced on a flat-rated basis[1946] applies to dedicated transmission links because these facilities are dedicated to the use of a specific customer.

821. For dedicated transmission links, states must use existing rates for interstate dedicated switched transport as a default proxy ceiling. We believe these rates are currently at or close to economic cost levels. Such rates were set based on interstate special access rates, which we found based on the record in the *Transport* proceeding were relatively close to costs.[1947] These interstate access rates originally were based on incumbent LEC accounting costs, rather than a forward-looking economic cost

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[1941] AT&T comments at 68.

[1942] Ohio Consumers' Counsel reply at 16.

[1943] Sprint comments at 63.

[1944] MCI comments at 30.

[1945] AT&T comments at 67.

[1946] *See supra*, Section VII.B.3.

[1947] *First Transport Order*, 7 FCC Rcd at 7028 (1992); *Transport Rate Structure and Pricing*, CC Docket No. 91-213, Third Memorandum Opinion and Order on Reconsideration and Supplemental Notice of Proposed Rulemaking, 10 FCC Rcd 3030, 3038-39 (1994).

model. Since 1991, however, incumbent LEC interstate access rates have been subject to price cap regulation, and have therefore been disengaged from embedded costs.[1948]

822. Typically, transmission facilities between tandem switches and end offices are shared facilities. Pursuant to our rate structure guidelines, states may establish usage-sensitive or flat-rate charges to recover those costs. For shared transmission facilities between tandem switches and end offices, states may use as a default proxy ceiling the rate derived from the incumbent LEC's interstate direct trunked transport rates in the same manner that we derive presumptive price caps for tandem switched transport under our interstate price cap rules, using the same weighting and loading factors.[1949] We conclude above that interstate direct-trunked transport rates provide a reasonable default proxy ceiling for unbundled dedicated transport rates. When we restructured the incumbent LECs' interstate transport rates to be more closely aligned with cost, we derived presumptive tandem-switched transmission rate levels from direct-trunked transport rates.[1950] This proxy ceiling for shared transmission facilities between tandem switches and end offices, therefore, should be similarly derived.

823. The United States Court of Appeals for the District of Columbia Circuit recently remanded our interim transport rules.[1951] The court concluded that the Commission had not provided sufficient justification for its method of establishing the rate level of the interstate switched access rate element for

[1948] Interstate access rates for dedicated transport vary by region, type of circuit, mileage, and other factors. For example, BellSouth's entrance facility charge, for transport from an IXC's point of presence to a BellSouth serving wire center, is $134 monthly per DS1 circuit ($5.58 per derived voice grade circuit) and $2,100 monthly per DS3 circuit ($3.13 per derived voice grade circuit). Dedicated transport for 10 miles of interoffice transmission between a serving wire center and an end office is $325 monthly per DS1 circuit ($13.54 per derived voice grade circuit) and $2,950 monthly per DS3 circuit ($4.39 per derived voice grade circuit). Installation, multiplexing, and other transport-related charges may also apply.

[1949] Specifically, when the transport rate restructure was implemented, the initial levels of tandem-switched transmission rates were presumed reasonable if they were based on a weighted per-minute equivalent of direct-trunked transport DS1 and DS3 rates that reflects the relative number of DS1 and DS3 circuits used in the tandem to end office links, calculated using a loading factor of 9000 minutes per month per voice-grade circuit. 47 C.F.R. § 69.111.

[1950] *First Transport Order*, 7 FCC Rcd at 7018-19. Interstate access rates for tandem-switched transport vary by region and mileage. The average charge by RBOCs in Density Zone 1 for transport termination and one mile of switched common transport facility between a tandem switching office and end office equals 0.033 cents ($0.000331) per minute. For a five-mile facility, the average charge is 0.048 cents ($0.000479) per minute; for a ten-mile facility, 0.066 cents ($0.000664) per minute.

[1951] *Competitive Telecommunications Ass'n v. FCC*, No. 95-1168 (D.C. Cir. April 28, 1996).

tandem switching.[1952] We do not believe, however, that the *CompTel v. FCC* decision is inconsistent with the rules we establish here because the decision did not address or criticize the Commission's determination of the rates for dedicated transport or tandem-switched transport links. Because our proxies do not involve the interstate access rate for tandem switching, they are not inconsistent with the court's analysis.

824. Tandem switching also employs shared facilities. States may, therefore, establish usage-sensitive charges to recover tandem-switching costs. For those states that cannot complete a forward-looking economic cost study within the arbitration period or cannot devote the necessary resources to such a review, we establish a default rate ceiling of 0.15 cents ($0.0015) per minute of use. The additional cost of termination at a tandem in comparison to termination at an end office consists of the cost of tandem switching and the cost of tandem-switched transport transmission. Illinois and Maryland have adopted rates for the transport and termination of traffic from the tandem switch that are, respectively, 0.25 cents ($0.0025) per minute of use and 0.2 cents ($0.002) per minute of use, higher than rates for termination at end office switches.[1953] In both instances, our default rate ceiling for tandem switching constitutes at least 60 percent of the implicit tandem switching and transport to the end office switch. We, therefore, find the default rate ceiling we adopt for tandem switching to be consistent with both Illinois's and Maryland's adopted rates for transport and switching of traffic from the tandem office. States that use our proxy and impose flat-rated charges for tandem switching should set rates so that the price does not exceed 0.15 cents ($0.0015) per minute of use if converted through use of a geographically disaggregated usage factor.

825. Rates for signaling and database services should be usage-sensitive, based either on the number of queries or the number of messages, with the exception of the dedicated circuits known as signaling links, which should be charged on a flat-rated basis. Usage charges of this type appear to reflect most accurately the underlying costs of these services.[1954] Interstate access rates for most of these elements have been justified using the price caps new services test, which roughly approximates the results of a forward-looking economic cost study.[1955] In addition, the costs of these services were forward-looking, in

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[1952] The court accepted both AT&T's claim that the Commission had not justified the allocation of 80 percent of the tandem revenue requirement to the TIC and only 20 percent to the tandem element, and CompTel's argument that the Commission had not justified its allocation of overheads to the tandem element.

[1953] Illinois Commission comments at Attachment C (Illinois Commerce Commission Docket No. 94.0096), pp.83-86, 98; Maryland Commission comments at Appendix B (Maryland Commission Order No. 72348, Case No. 8548 Phase II), pp.28-32.

[1954] *Ameritech Operating Companies Petition for Waiver of Part 69 of the Commission's Rules to Establish Unbundled Rate Elements for SS7 Signalling*, DA 96-446, Order, at para. 31 (Com. Car. Bur., rel. Mar. 27, 1996).

[1955] *Amendments of Part 69 of the Commission's Rules Relating to the Creation of Access Charge supplements for Open Network Architecture*, CC Docket Nos. 89-79 and 87-313, Report and Order, Order on Reconsideration, and Supplemental Notice of Proposed Rulemaking, 6 FCC Rcd 4524, 4531 (1991), *modified on recon*, 7 FCC Rcd 5235

that the services were completely new and hence, by definition, used the best-available technology. Thus, we establish as a default proxy ceiling for these elements corresponding interstate access charges for these elements.[1956] For elements that have not been subject to the new services test, states may establish proxy ceilings by identifying the direct costs of providing the element and adding a reasonable allocation of joint and common costs. Because we expect that the joint and common costs associated with the forward-looking cost of network elements are substantially less than those associated with traditional service-based costs,[1957] allowing a reasonable allocation is sufficient to protect against possible anticompetitive pricing. Absent any proxy, this approach will provide the most reasonable approximation of forward-looking economic cost.

826. We have established rate structure rules for collocation elements in connection with our *Expanded Interconnection* proceeding.[1958] Many collocation elements established under section 251(c)(6) are likely to represent the same facilities, and should have the same cost characteristics, as existing interstate expanded interconnection services, and therefore we require states to use the same rate structure rules for those collocation elements that we established in the *Expanded Interconnection* proceeding. As a proxy ceiling, states may use the rates the LEC has in effect in its federal expanded interconnection tariff for the equivalent services. Expanded interconnection services are subject to the new services test, which, as discussed above, uses a forward-looking methodology. Although LECs have filed expanded interconnection tariffs, we have not yet completed our investigation into those tariffs. Any price for unbundled collocation elements set based on LEC expanded interconnection tariffs would therefore be subject to any modification of those tariffs that results from our pending investigation, and any state-imposed prices based on those tariffs will need to be adjusted accordingly.

827. We find it unnecessary to specify rate structures for other unbundled elements. The states shall make those determinations by applying our general rate structure principles described above. In the absence of an acceptable forward-looking cost study, states may establish default proxy ceilings for other unbundled elements by identifying the direct costs of providing the element and adding a reasonable allocation of joint and common costs.

(1992); *Open Network Architecture Tariffs of Bell Operating Companies*, CC Docket No. 92-91, Order, 9 FCC Rcd 440, 454-456 (1993).

[1956] Interstate database services consist of Line Information Database (LIDB) and 800 Database. Deployment of SS7 (out-of-band signaling) has enabled LECs to offer these services. The average charge for RBOCs for LIDB in Density Zone 1 equals 3.34 cents ($0.034) per database query.

[1957] *See supra*, Section VII.B.2.a.

[1958] *Expanded Interconnection with Local Telephone Company Facilities*, CC Docket No. 91-141, 9 FCC Rcd 5154, 5186 (1994).

3. Forward-Looking Cost Model Proxies

a. Background and Comments

828. In the NPRM, we sought comment on the use of certain generic cost studies. Commenters discussed several such models. These models include: 1) the *Hatfield 2*;[1959] 2) the *Hatfield 2.2*;[1960] 3) the *BCM*;[1961] 4) the *BCM 2*;[1962] and 5) the *CPM*.[1963]

829. *Generic Cost Models*. Several generic forward-looking costing models were introduced into the record. Several commenters, supporting the use of generic cost models to establish the rates that incumbent LECs may charge for interconnection and unbundled elements, claim that such an approach would result in ceilings that are efficient, objective, and based on non-proprietary inputs.[1964] On the other hand, certain commenters argue that generic cost models should not be used as proxies because they fail to reflect the possible differences in costs among states, and among carriers, due to technical, demographic, and geographic factors.[1965] In addition, many parties also discussed the use of proxies as direct substitutes for the prices of interconnection and unbundled network element rates.[1966]

[1959] *The Cost of Basic Network Elements: Theory, Modeling, and Policy Implications* (Hatfield Associates, Inc., March 1996), submitted by MCI on March 29, 1996 (*Hatfield 2*).

[1960] *Hatfield Model, Version 2.2, Release 1* (Hatfield Associates, Inc., March 1996), submitted by AT&T and MCI on May 16, 1996 (*Hatfield 2.2*); *see also* AT&T reply at Appendix D (Update of the Hatfield Model Version 2.2, Release 1).

[1961] *Benchmark Cost Model: A Joint Submission by MCI Communications, Inc., NYNEX Corporation, Sprint Corporation, U S West, Inc.* (December 1995), submitted by MCI Communications, Inc., NYNEX Corp., Sprint/United Management Corp., U S West, Inc. on July 24, 1996 (*BCM*).

[1962] *Benchmark Cost Model 2* (July 1996), submitted by Sprint Corp. and U S West, Inc., on July 24, 1996 (*BCM 2*).

[1963] *The Cost Proxy Model* (INDETEC International, 1996), submitted by Pacific Telesis Group on June 7, 1996 (*CPM*).

[1964] *See, e.g.*, Ad Hoc Telecommunications Users Committee comments at 50; PacTel comments at 76; Ohio Consumers' Counsel comments at 28-29.

[1965] *See, e.g.*, Bay Springs, *et al.* comments at 16-17; Cincinnati Bell comments at 28; Florida Commission comments at 30; Telecommunications Resellers Ass'n comments at 41; California Commission reply at 19.

[1966] *See, e.g.*, AT&T comments at 53.

830. *The Hatfield Models.*[1967] Parties also commented on the particular generic cost models placed on the record in this proceeding, and several support the use of a version of the *Hatfield* model.[1968] These parties argue that the *Hatfield* model represents the only comprehensive nationwide analysis of virtually all network elements on a highly disaggregated basis and is the ideal standard for the Commission to adopt because it will provide immediate certainty on pricing.[1969] Other commenters oppose the application of a version of the *Hatfield* model,[1970] asserting that it may not accurately reflect an incumbent LEC's decisionmaking process for determining the economic and technical feasibility of interconnection because it assumes building "from scratch," an assumption potentially leading to inaccuracy.[1971] Critics of the various *Hatfield* models also argue that they results in below-cost rates for services,[1972] do not capture embedded costs,[1973] and employ a nationwide industry average for costs when costs should be based on the particular carrier's costs.[1974]

831. GTE argues that the *Hatfield 2.2* model's assumptions and analytic practices result in an understatement of cost per loop of about $8.00.[1975] GTE criticizes the assumption that all traffic carried by LECs will be served by a brand new entrant that instantly materializes. GTE indicates that such an assumption would not produce results that are representative of incumbent LEC costs when providing services and unbundled elements. GTE argues that the *Hatfield 2.2* model's use of multiplicative factors to calculate installation costs produces inaccuracies, to the extent that the basis of these factors depart from historical relationships. In addition, GTE asserts that the equipment prices used in the *Hatfield 2.2* model

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[1967] We note that many parties did not address their comments to a particular version of the *Hatfield* model. In such cases, we will refer generally to the *Hatfield* model.

[1968] *See, e.g.*, ACSI comments at 56; AT&T comments at 53 (commenting on *Hatfield 2.2*); MCI comments at 68-69 (commenting on *Hatfield 2*); NEXTLINK comments at 27-28; Washington Commission comments at 27.

[1969] *See, e.g.*, MCI comments at 69 (commenting on *Hatfield 2*).

[1970] *See, e.g.*, PacTel comments at 74-76, reply at 30 (commenting on *Hatfield 2.2*); Ohio Consumers' Counsel comments at 29 n.10; USTA comments at 54 n.45; Sprint reply at 31-32; Rural Tel. Coalition reply at 35.

[1971] *See, e.g.*, Florida Commission comments at 28-29; Lincoln Tel. reply at 6; Rural Tel. Coalition reply at 35; USTA comments at 47-48, 54 n.45.

[1972] *See, e.g.*, Lincoln Tel. reply at 6; U S West comments 20-22.

[1973] *See, e.g.*, USTA comments at 54 n.45; Rural Tel. Coalition reply at 35; PacTel reply at 30 (commenting on *Hatfield 2.2*).

[1974] *See, e.g.*, GVNW reply at 12-13; Lincoln Tel. reply at 6; Sprint reply at 28-32.

[1975] Letter from Whitney Hatch, Assistant Vice President Regulatory Affairs, GTE, to William F. Caton, Acting Secretary, FCC, July 11, 1996 at Attachment 2 (Economic Evaluation of Version 2.2 of the Hatfield Model).

are consistently lower than prices paid by LECs. Moreover, GTE asserts that the capital cost and depreciation rates of the *Hatfield 2.2* model do not reflect costs of capital and depreciation rates that will prevail under competitive conditions.[1976] Finally, it asserts that the *Hatfield 2.2* model uses unrealistically high fill factors (the percentage of capacity used), which results in an understatement of investment and, hence, annualized cost.[1977]

832. *The Benchmark Cost Models.*[1978] Although some parties support the use of the *BCM* to set rates for interconnection and unbundled elements,[1979] many other parties oppose its use for this purpose.[1980] Several commenters argue that, because the *BCM* was designed to identify only high cost areas, its assumptions are flawed and will fail to reflect small and rural LECs' network characteristics.[1981] NYNEX argues that the *BCM* is based on a limited set of assumptions about the costs that affect loops.[1982] Commenters further contend that the *BCM* is not technology neutral,[1983] is not designed to estimate the costs of serving business customers,[1984] assumes one type of central office switch,[1985] and uses ARMIS cost loading factors that assume that costs are spread over the existing, larger investment base.[1986]

833. *Cost Proxy Model (CPM).* Pacific Telesis maintains that its *CPM* is a superior alternative to the *Hatfield* models and *BCM* models because it is more flexible, can be based on non-proprietary

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[1976] *Id*. at 13-16.

[1977] *Id*. at 9-12.

[1978] We note that many parties did not address their comments to a particular version of the *BCM*. In such cases, we will refer generally to the *BCM*.

[1979] *See, e.g.*, ACSI comments at 56; Sprint comments at 54 n.30; Texas Public Utility Counsel comments at 29.

[1980] *See, e.g.*, Florida Commission comments at 29-30; GVNW comments at 38-39; NYNEX comments at 57; Ohio Consumers' Counsel comments at 29, n.10; PacTel comments at 74-76; SBC comments at 92-93; TDS comments at 22; Rural Tel Coalition comment at 22, reply at 34-35.

[1981] *See, e.g.*, Rural Tel. Coalition comments at 22; TDS comments at 22; *see also* Time Warner comments at 54-55; USTA comments at 54 n.45.

[1982] NYNEX comments at 57; *see also* SBC comments at 92-93.

[1983] *See, e.g.*, WinStar comments at 34; Texas Statewide Tel. Cooperative, Inc. comments at 14.

[1984] *See, e.g.*, NYNEX comments at 57.

[1985] *Id*.

[1986] *Id*.

information, can be independently audited, can estimate the cost of providing local telephone service for one-fourth (1/4) mile grids or large geographic areas, and reflects the actual locale of subscribers within a census block.[1987]

b. Discussion

834. We believe that the generic forward-looking costing models, in principle, appear best to comport with the preferred economic cost approach discussed previously. Several such models were placed in the record, including *Hatfield 2*, *Hatfield 2.2*, *BCM*, *BCM 2*, and the *CPM*. The *BCM* is designed to produce "benchmark" costs for the provision of basic telephone service within specific geographic regions defined by the Bureau of the Census as Census Block Groups. The *Hatfield 2* model combines output from the *BCM* with independently-developed investment data to produce annual cost estimates for eleven basic network functions. The *CPM* is similar in structure to the *BCM* and *Hatfield 2* models, although it uses different algorithms.

835. These models appear to offer a method of estimating the cost of network elements on a forward-looking basis that is practical to implement and that allows state commissions the ability to examine the assumptions and parameters that go into the cost estimates. Although these models were submitted too late in this proceeding for the Commission and parties to evaluate them fully, our initial examination leads us to believe that the remaining practical and empirical issues can be resolved in the near future. In light of the advantages of such a generic approach, we will further examine these generic economic cost models by the first quarter of 1997 to determine whether we should use one of them to replace the default proxies we adopt in this proceeding. In that event, states would have the option of setting rates in arbitrations on the basis of an economic cost study or by using a generic forward-looking cost model approved at that time.[1988]

836. Finally, we note that Commission staff developed a model of the telecommunications industry that they designed to simulate industry demand and supply characteristics.[1989] In order to encourage an open-ended discussion of the utility of the staff model, the Common Carrier Bureau sought comment on a working draft of the model that was released. Almost all parties commenting on the staff model urged the

[1987] PacTel comments at 76.

[1988] We note that we address certain criticisms of the models in the context of their use in the development of the proxy for the unbundled local loop, *supra*, Section VII.C.2.b.(1)(b).

[1989] *See* Public Notice, *Supplemental Comment Period Designated for Local Competition Proceeding*, CC Docket 96-98, DA 96-1007 (rel. June 20, 1996). The comment period was extended subsequently to July 8, 1996. *See* Public Notice, *Supplemental Comment Period Extended for Local Competition Proceeding*, CC Docket 96-98, DA 96-1030 (rel. June 25, 1996). The Commission did not authorize reply comments.

Commission not to rely upon the staff model as record evidence in this proceeding.[1990] We are not relying on the staff model to develop the requirements imposed by this Order.

D. Other Issues

1. Future Adjustments to Interconnection and Unbundled Element Rate Levels

a. Background and Comments

837. In the NPRM, we sought comment on whether some cost index or price cap system would be appropriate to ensure that rates reflect expected changes in costs over time.[1991] Only two parties commented on this issue, and neither supported establishment of a price cap system or other index system to adjust rates over time. MCI claims that it is not necessary to recompute TSLRIC costs each year. It argues that large productivity factors are not needed as they are in price cap system, because initial access rates were based on embedded costs, which greatly exceed economic costs. MCI proposes that the Commission should use initial rates as ceilings for a three to five year period. It contends that, if competition develops satisfactorily, there may not be a need to revisit the costing process. On the other hand, MCI suggests that if it appears that LECs retain substantial market power, a performance review could become necessary.[1992] Ad Hoc Telecommunications Users Committee notes that the success of any price cap plan would depend on the accuracy of the productivity offset. It states that an inappropriately low productivity offset could result in excessive charges.[1993]

b. Discussion

838. As noted earlier, we will continue to review our pricing methodology, and will make revisions as appropriate. Accordingly, there is no present need to establish a Commission price cap or cost index system to adjust interconnection and unbundled element rate levels.

[1990] *See, e.g.*, Ameritech July 8 comments at 14; NCTA July 8 comments at 2; PacTel July 8 comments at 21; *see also* New York Commission July 8 comments at 1-2 (Commission should institute "collaborative process" whereby federal, state, and industry participants can review model and develop alternatives).

[1991] NPRM at para. 133.

[1992] MCI comments at 68.

[1993] Ad Hoc Telecommunications Users Committee comments at 31.

2. Imputation

a. Background

839. We sought comment in the NPRM on whether we should require an "imputation rule" in establishing rates for unbundled network elements.[1994] An imputation rule would require that the sum of prices charged for a basket of unbundled network elements not exceed the retail price for a service offered using the same basket of elements. We further solicited comment on any other rules that could be adopted regarding pricing of unbundled network elements that would help to promote the pro-competitive goals of the 1996 Act.

b. Comments

840. Commenters favoring an imputation rule, including some IXCs and other potential entrants, and one state utility counsel, argue that imputation is necessary to prevent potential anticompetitive practices highlighted in the NPRM, such as price squeezes and predatory pricing by incumbent LECs.[1995] Several commenters also endorsed imputation as a method of testing whether rates are reasonable.[1996] Sprint argues that, unless the Commission imposes an imputation rule, incumbent LECs will have little incentive to pursue rate rebalancing activities vigorously before state commissions.[1997] Teleport urges the Commission not to assume that new entrants possess sufficient financial resources to survive a price squeeze and suggests that, if a carrier fails an imputation test, the Commission should find that the market is not sufficiently competitive to allow incumbent BOC entry into the in-region long distance market.[1998]

841. Among new entrants, Time Warner believes an imputation rule is unnecessary because unbundled element rates will not exceed retail rates in most cases.[1999] It asserts that the Commission should not adopt an imputation rule during the transition period prior to the enactment of universal service reform,

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[1994] NPRM at para. 184.

[1995] *See e.g.*, ACSI comments at 56-57; ACTA comments at 26; Frontier comments at 29-30; NEXTLINK comments at 33; Telecommunications Resellers Ass'n comments at 26; Teleport comments at 60-63; Texas Public Utility Counsel comments at 47-48. MCI comments at Attachment 1 (The Cost of Basic Network Elements: Theory, Modeling and Policy Implications), pp.6-7 (arguing that imputation is necessary, but not sufficient, to prevent price squeezes).

[1996] *See, e.g.*, Intermedia Comments at 14; Sprint Comments at 72-74.

[1997] Sprint reply at 44.

[1998] Teleport comments at 60-63.

[1999] Time Warner comments at 83.

and that it is unlikely that competing providers will ignore competitive forces and uniformly retain non-competitive margins in order to support residential rates below TSLRIC.[2000]

842. Several commenters express the view that imputation issues should be left for decision by the states.[2001] A number of state utility commissions that employ an imputation rule in their states endorse imputation as a way to prevent price squeezes, but either take no position on, or oppose, Commission adoption of imputation as a national standard.[2002] The Michigan Commission Staff believes that states should have flexibility to address imputation issues on their own, a process that has already begun in Michigan.[2003] The Washington Commission states that, although it has employed imputation as a method of ensuring that customers of monopoly services do not subsidize other more competitive services, the "threat" posed by below-cost rates generally has been overstated.[2004]

843. The National Association of State Utility Consumer Advocates and the Competition Policy Institute argue that the Commission lacks power to act in this area because of the intrastate/interstate jurisdictional divide established by section 152(b) of the Communications Act of 1934.[2005]

844. Responding to the concern, expressed in the NPRM, about requiring imputation for below-cost services, the Texas Commission observes that Texas law will permit waiver of its imputation rule in certain cases.[2006] Frontier states that in the case of subsidized services a limited offset could be applied to

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[2000] *Id*. at 84-85

[2001] *See, e.g*., Alabama Commission comments at 28; Florida Commission comments at 38 (no need for federal imputation rule if each state may implement unbundled element pricing rules that cover costs); Wyoming Commission comments at 36.

[2002] *See, e.g*., Colorado Commission comments at 56-57 (opposing a national imputation rule); Washington Commission comments at 35 (questioning the need for preemption order that would require that local service rates exceed costs); Illinois Commission comments at 56-58 (urging the Commission not to prohibit states from adopting imputation rules, but taking no position on the need for a national imputation rule pending further study by the federal-state joint board).

[2003] Michigan Commission Staff comments at 16-17.

[2004] Washington Commission comments at 36.

[2005] Competition Policy Institute comments at 13; Natl. Ass'n of State Util. Consumer Advocates comments at 5-8; Joint Consumer Advocates reply at 14.

[2006] Texas Commission comments at 29-30, Attachment II (Public Util. Regulatory Act of 1995, Tex. Rev. Civ. Stat. Ann., Art. 1446(c)) (Texas law requires the Texas Commission to adopt imputation rules by December 1, 1996).

reflect the subsidy, but only in the uncommon case in which the incumbent LEC can affirmatively prove that the affected class of service is priced below its forward-looking incremental cost.[2007]

845. Joint Consumer Advocates and the Ohio Commission suggest that adoption of an imputation rule is unnecessary because both the incumbent LEC and the new entrant will face the same burdens in providing below cost service, and each may recover their costs through other revenue sources, such as federal and state universal service funds.[2008] Joint Consumer Advocates and Ohio Consumers' Counsel take issue with the assumption that local service is subsidized, and argue imputation is unnecessary because retail rates are not significantly below cost.[2009] They assert that since other services, such as toll, also use the local loop, it is improper to load all of the costs of the local loop onto local service.[2010]

846. Several commenters voice concerns that an imputation rule would be difficult to implement in rural areas.[2011] The Minnesota Independent Coalition states that imputation could lead to increases in local rates for rural service, in contravention of the 1996 Act's universal service requirements of preserving rates in rural areas that are reasonably comparable to rates charged for similar services in urban areas, and the universal service policy requirements of 254(b).[2012]

847. Incumbent LECs also oppose imputation, claiming that it would create opportunities for arbitrage,[2013] fail to reflect the costs of unbundling incumbent LEC networks,[2014] put pressure on states to raise retail rates,[2015] create a de facto ceiling preventing incumbent LECs from recovering their costs,[2016]

[2007] Frontier comments at 29-30.

[2008] Joint Consumer Advocates reply at 15-16; Ohio Commission comments at 67.

[2009] Joint Consumer Advocates reply at 14-16; Ohio Consumers' Counsel comments at 38-40.

[2010] *Id.*

[2011] *See, e.g.*, TCA Comments at 8.

[2012] Minn. Ind. Coalition comments at 31, 33; *see also* Western Alliance comments at 3-4 (Commission should not adopt an imputation rule until other, explicit mechanisms are in place to ensure the statutory goal of reasonable parity of urban and rural rates).

[2013] *E.g.*, USTA comments at 75.

[2014] *See, e.g.*, Ameritech comments at 83-84 (rejecting a "sum-of-the-parts" test for unbundled element pricing, and arguing that an imputation rule must make allowance for costs of unbundling the network); GTE comments at 64-65.

[2015] *E.g.*, USTA comments at 77.

[2016] *E.g.*, NYNEX comments at 60 (asserting that such a price ceiling conflicts with the 1996 Act).

and constitute an unconstitutional taking of incumbent LEC revenues.[2017] NYNEX and BellSouth also assert that restrictions on cost recovery are inconsistent with the 1996 Act's requirement that unbundled element rates be based on costs.[2018] According to USTA and Ameritech, an imputation rule may cause incumbent LECs to subsidize new entrants, and lead to inefficient entry.[2019] BellSouth argues that intrastate retail prices are based on factors other than cost, such as the policies of the state commission that approved the charges, and that an imputation rule would interfere with the states' exclusive ratemaking authority over intrastate rates and charges. According to BellSouth, Congress did not establish any requirement or expectation that these pricing standards would yield charges that would bear any particular relationship to one another, and BellSouth asserts there is no reason to expect the sum of unbundled element prices to add up to the retail rate any more than one would expect that the individual parts of an automobile could be obtained for less than the price of an already-assembled car. [2020]

c. Discussion

848. Although we recognize, as several commenters observe, that an imputation rule could help detect and prevent price squeezes, we decline to impose an imputation requirement. Adoption of an imputation rule could force states to engage in a major rate rebalancing effort at this time, because it would impose substantial additional burdens on states at a time when they will need to devote significant resources to implementing the 1996 Act.

849. In addition to our practical concerns regarding implementation of an imputation rule, we find that an imputation rule may not be necessary to achieve the pro-competitive goals of the 1996 Act. As some commenters, including several state commissions, suggest, competing providers may be able to provide basic service, at less than the cost of facilities and associated management, just as incumbent LECs do currently, by selling customers higher profit vertical or intrastate toll services, or through receipt of access revenues and subsidies. Further, the Ohio Consumers' Counsel suggest that below-cost rates may not be sufficiently prevalent to justify a national imputation rule.[2021] The Joint Consumer Advocates and the Ohio Consumers' Counsel question whether local service is, in fact, underpriced.[2022]

[2017] *See, e.g.*, NYNEX comments at 60-61; USTA comments at 77, reply at 31.

[2018] BellSouth reply at 42; NYNEX comments at 61.

[2019] Ameritech comments at 84; USTA comments at 77.

[2020] BellSouth comments at 68; *see also* US Network Services comments at 5-6.

[2021] Ohio Consumers' Counsel comments at 39.

[2022] Joint Consumer Advocates reply at 16; Ohio Consumers' Counsel comments at 39.

850. We give special weight to the comments of several state commissions that currently employ imputation rules.[2023] These state commissions endorse imputation as a tool to prevent price squeezes, but urge us only to provide states with the flexibility to adopt imputation rules. We agree with those state commission commenters that argue that nothing in the 1996 Act prohibits individual states from adopting imputation rules. While an imputation rule may be pro-competitive, we will leave the implementation of such rules to individual states for the time being.

3. Discrimination

a. Background

851. In the NPRM, we noted the different usages of the term "discrimination" in the 1996 Act and the 1934 Act.[2024] Sections 251 and 252 require that interconnection and unbundled element rates be "nondiscriminatory."[2025] Similarly, section 251(c)(4) requires that, in making resale available, carriers not impose "discriminatory conditions or limitations on resale."[2026] Finally, section 252(e) provides that states may reject a negotiated agreement or a portion of the agreement if it "discriminates" against a carrier not a party to the agreement and section 252(i) requires incumbent LECs to "make available any interconnection, service, or network element provided under an agreement . . . to which it is a party to any requesting telecommunications carrier upon the same terms and conditions."[2027] In contrast, section 202(a) of the 1934 Act provides that "(i)t shall be unlawful for any common carrier to make any unjust or unreasonable discrimination in charges . . . for . . . like communication service."[2028]

852. We sought comment on "the meaning of the term 'nondiscriminatory' in the 1996 Act compared with the phrase `unreasonable discrimination' in the 1934 Act." We asked specifically whether Congress intended to prohibit all price discrimination, including measures such as density zone pricing or volume and term discounts, by choosing the word "nondiscriminatory." We further asked whether sections 251 and 252 could be interpreted to prohibit only unjust or unreasonable discrimination. Finally, we sought

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[2023] *See, e.g.*, Colorado Commission comments at 56-57; Illinois Commission comments at 57-58; Michigan Commission Staff comments at 16-17; Washington Commission comments at 35.

[2024] NPRM at para. 155.

[2025] 47 U.S.C. §§ 251(c)(2), (3), (6), and 252(d)(1).

[2026] 47 U.S.C. § 251(c)(4)(B). *See infra*, Section VIII.C..

[2027] 47 U.S.C. §§ 252(e), (i).

[2028] 47 U.S.C. § 202(a).

comment on whether the 1996 Act prohibited carriers from charging different rates to parties that are not similarly situated.[2029]

b. Comments

853. Many state regulatory commissions, several incumbent LECs, and USTA maintain that the term "nondiscriminatory" used in the 1996 Act is synonymous with the prohibition of "unjust and unreasonable discrimination" used in the 1934 Act.[2030] Generally, these parties agree that pricing variations are only discriminatory when the affected parties are similarly situated. They argue that a blanket prohibition on all price differences, even when justified by costs, would be anti-competitive and would appear to defeat the process of negotiation. The Ohio Commission argues that smaller companies, not similarly situated to the larger telephone companies already in operation, need different treatment in order to compete.[2031] Finally, they contend that Congress did not intend to prohibit reasonably supported plans, such as volume and term discounts. The Pennsylvania Commission argues that, if Congress had intended to prohibit cost-based price differences, it would have included interconnection and unbundled elements in the prohibition against geographic price differences for toll rates, which is contained in Section 254(g).[2032] Pacific Telesis argues that different prices are permissible under the "nondiscriminatory" standard wherever incremental costs decline as output increases.[2033]

854. Other commenters, including MCI and MFS, assert that the term "nondiscriminatory" in the 1996 Act must be interpreted to have a more stringent meaning than the phrase "unjust and unreasonable discrimination" used in the 1934 Act.[2034] Several parties suggest that since the conferees considered and rejected a version of section 251 that applied an "unreasonably discriminatory" standard to the actions of incumbent LECs, the change in wording was purposeful.[2035] Generally, these parties argue that although the

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[2029] NPRM at para. 156.

[2030] *See, e.g.*, Alabama Commission comments at 23; BellSouth comments at 58; California Commission comments at 31-33; Colorado Commission comments at 48; District of Columbia Commission comments at 25; Illinois Commission comments at 47; Indiana Commission comments at 25; MECA comments at 55-56; Ohio Commission comments at 51; PacTel comments at 76-77; USTA comments at 57-58.

[2031] Ohio Commission comments at 53.

[2032] Pennsylvania Commission comments at 32.

[2033] PacTel comments at 77;*but see* AT&T reply at 35.

[2034] *See, e.g.*, MCI comments at 71; MFS comments at 63; ALTS reply at 40.

[2035] NCTA comments at 31 n.114 (*citing* S. 652, 104th Cong. 1st Sess. § 101 (deleting Section 251(c)(2)(C)) (Draft, Nov. 27, 1995));*see also* MFS comments at 63.

"nondiscriminatory" standard is more stringent, cost-based price differences are nonetheless permissible under the 1996 Act.[2036] The Independent Cable & Telecommunications Association contends that the only way to prevent incumbent LECs from discriminating against smaller companies and new entrants is to prohibit all non-cost based price differences.[2037] LDDS argues that only cost-based price differentials should be permitted, and that any non-cost-based volume discount should be prohibited, even if arrived at through agreement of the parties.[2038]

855. A third group of commenters argue for a strict reading of the term "nondiscriminatory."[2039] They argue that the plain meaning of the term "nondiscriminatory" without qualification demonstrates that under section 251 even reasonable discrimination is impermissible.[2040] R. Koch contends that if there is *any* discrimination, small entrants will be at a disadvantage.[2041] Finally, they maintain that the higher standard reflects the distinction between the carrier-user relationship being regulated in section 202(a) and the intercarrier relationship addressed in section 251(c).[2042]

856. CMRS providers argue that some state regulations treat CMRS providers differently than wireline new entrants with respect to the rates for interconnection with incumbent LECs. AT&T Wireless contends that the New York and Connecticut Commissions require incumbent LECs to charge two distinct interconnection rates depending on whether the carrier is classified as a CMRS provider or competing provider of local exchange service.[2043] According to AT&T Wireless, in New York, the wireline competitive LEC rate for termination of traffic on the incumbent LEC network is less than one cent per minute and the CMRS provider rate is approximately 2.6 cents ($0.026) per minute.[2044] AT&T Wireless

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[2036] *See, e.g.*, MCI comments at 71-72; MFS comments at 64; Michigan Commission comments at 18; Municipal Utilities comments at 14-15; Pennsylvania Commission comments at 32; Sprint comments at 64-65.

[2037] Ind. Cable & Telecomm. Ass'n reply at 11-12.

[2038] LDDS reply at 40-41.

[2039] *See, e.g.*, AT&T comments at 68-69; NCTA comments at 31 (section 251(c) requires strict scrutiny of any discrimination, not solely unreasonable discrimination); WinStar comments at 7.

[2040] *See, e.g.*, WinStar comments at 7.

[2041] *See, e.g.*, R. Koch comments at 3.

[2042] NCTA comments at 31.

[2043] Letter from Cathleen A. Massey, AT&T Wireless Services, to William F. Caton, Acting Secretary, FCC, July 2, 1996, filed in CC Docket Nos. 95-185 and 96-98, at 1-3 (*AT&T July 2, 1996 Ex Parte*).

[2044] *Id.*

further contends that, in order to obtain the lower rate, a CMRS provider in New York must comply with state regulations, such as universal service obligations associated with residential and Lifeline service.[2045] Bell Atlantic NYNEX Mobile submits that in Connecticut, the rate for wireline new entrants' termination of traffic on the incumbent LEC network is less than one cent ($0.01) per minute and the CMRS provider rate is 4.14 cents ($0.0414) per minute.[2046] AT&T Wireless states that California has ordered incumbent LECs to implement interim bill-and-keep compensation for interconnection for wireline entrants' interconnection but not for CMRS providers' interconnection,[2047] and Florida has ruled that no compensation shall be paid to mobile carriers by incumbent LECs for land-originated calls.[2048]

857. In addition to their assertion regarding rate discrimination, CMRS providers maintain that state commissions permit incumbent LECs to treat CMRS providers in a discriminatory manner with respect to the terms and conditions of interconnection.[2049] Bell Atlantic NYNEX Mobile states that in Connecticut, Maryland, New York and Texas, the rates paid by Bell Atlantic NYNEX Mobile to the connecting LEC to terminate calls originated on Bell Atlantic NYNEX Mobile's network are more than twice the rates paid by competing wireline LECs to incumbent LECs.[2050] Bell Atlantic NYNEX Mobile also states that "these disparities have no rational cost basis since an incumbent LEC's costs to complete a call received from Bell Atlantic NYNEX Mobile should be no higher than its costs to complete calls

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[2045] *See Order Instituting Framework for Directory Listings, Carrier Interconnection and Carrier Compensation*, New York Public Service Commission, CASE 94-C-0095 (New York Commission, September 27, 1996) at 15.

[2046] Bell Atlantic NYNEX Mobile comments in CC Docket No. 95-185, at Exhibit A.

[2047] *Competition For Local Exchange Service*, Decision 95-07-054, Appendix A, para. 7 (California Commission, July 24, 1995).

[2048] *See Investigation Into the Rates For Interconnection of Mobile Service Providers With Facilities of Local Exchange Companies*, Docket No. 940235-TL, slip op. at 24 (Florida Commission, Oct. 11, 1995).

[2049] AT&T comments in CC Docket No. 95-185, at 27; AirTouch Communications comments in CC Docket No. 95-185, at 33; Bell Atlantic NYNEX Mobile comments in CC Docket 95-185, at 5-6; Comcast Corporation comments in CC Docket No. 95-185, at 6-7; New Par comments in CC Docket No. 95-185, at 4-5.

[2050] Bell Atlantic NYNEX Mobile comments in CC Docket No. 95-185, at Exhibit A, p.5. Bell Atlantic NYNEX Mobile's Exhibit A shows that LEC charges to competitive providers on an average rate per minute are considerably less than those to CMRS carriers: In Connecticut, Bell Atlantic NYNEX Mobile pays 4.14 cents/min. ($0.0414) to terminate local traffic on a LEC network while competitive providers pay 0.8 cents/min. ($0.008); in Maryland, Bell Atlantic NYNEX Mobile pays 2.27 cents/min. ($0.0227) to terminate local traffic on a LEC network, while competitive providers pay 0.5 cents/min. ($0.005); in New York, Bell Atlantic NYNEX Mobile pays 2.59 cents/min. ($0.0259) to terminate local traffic on a LEC network, while competitive providers pay only 0.98 cents/min.; and in Texas, Bell Atlantic NYNEX Mobile pays 1.7 cents/min. ($0.017) to terminate local traffic on a LEC network, while competitive providers pay zero cents/min. ($0.0). *Id.*

received from other carriers."[2051] Similarly, APC states that its interconnection agreements with Bell Atlantic, which are identical in Maryland, Virginia, West Virginia, and District of Columbia, artificially inflate its costs by at least 3.1 cents ($0.031) per minute.[2052]

858. Western Wireless also provides examples of discriminatory interconnection rates by LECs.[2053] Western Wireless states that it has been unable to reach an agreement with any incumbent LECs in its wireless service area that is based on cost or that provides reciprocal compensation.[2054] AT&T Wireless contends that states regularly permit LECs to charge wireless carriers significantly higher rates than competing LECs for intrastate interconnection.[2055] CTIA cites LEC-LEC interconnection agreements in 18 states that provide for rates much below the approximate nationwide average incumbent LEC-CMRS interconnection rate of three cents ($0.03) per minute.[2056]

c. Discussion

859. We conclude that the term "nondiscriminatory" in the 1996 Act is not synonymous with "unjust and unreasonable discrimination" in section 202(a), but rather is a more stringent standard.[2057] Finding otherwise would fail to give meaning to Congress's decision to use different language. We agree, however, with those parties that argue that cost-based differences in rates are permissible under sections 251 and 252.

860. Section 252(d)(1), for example, requires carriers to base interconnection and network element charges on costs. Where costs differ, rate differences that accurately reflect those differences are not discriminatory. This is consistent with the economic definition of price discrimination, which is "the

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[2051] *Id*. at 5-6.

[2052] APC comments in CC Docket No. 95-185 at 5-6 (alleging it pays Bell Atlantic a monthly $25 per trunk surcharge between its mobile switching center and Bell Atlantic's tandem, a usage-sensitive charge for transport and switching elements, and $800 a month for termination for SS7 connectivity, while Bell Atlantic pays APC nothing in return)

[2053] Letter from Doane F. Kiechel, counsel to Western Wireless Corporation, to William F. Caton, Acting Secretary, FCC, July 5, 1996, in CC Docket No. 96-98.

[2054] *Id*. at 4.

[2055] *AT&T July 2, 1996 Ex Parte* at 3.

[2056] Letter from Randall S. Coleman, CTIA, to Michele Farquhar, Chief, Wireless Telecommunications Bureau, FCC, July 2, 1996, in CC Docket Nos. 95-185 and 96-98, at Attachments.

[2057] *See supra*, Section IV.G, discussing nondiscriminatory terms and conditions for interconnection, and *supra*, Section V.G., discussing nondiscriminatory terms and conditions for unbundled network elements.

practice of selling the same product at two or more prices where the price differences do not reflect cost differences . . . An important feature of the economic definition of price discrimination is that it occurs not only when prices are different in the presence of similar costs but also *when the prices are the same and the costs of supplying customers are different."* [2058] As one economist has recognized, differential pricing is "one of the most prevalent forms of marketing practices" of competitive enterprises.[2059] Strict application of the term "nondiscriminatory" as urged by those commenters who argue that prices must be uniform would itself be discriminatory according to the economic definition of price discrimination. If the 1996 Act is read to allow no price distinctions between companies that impose very different interconnection costs on LECs, competition for all competitors, including small companies, could be impaired. Thus, we find that price differences, such as volume and term discounts, when based upon legitimate variations in costs are permissible under the 1996 Act, if justified.

861. On the other hand, price differences based not on cost differences but on such considerations as competitive relationships, the technology used by the requesting carrier, the nature of the service the requesting carrier provides, or other factors not reflecting costs, the requirements of the Act, or applicable rules, would be discriminatory and not permissible under the new standard. Such examples include the imposition of different rates, terms and conditions based on the fact that the competing provider does or does not compete with the incumbent LEC, or offers service via wireless rather than wireline facilities. We find that it would be unlawfully discriminatory, in violation of sections 251 and 252, if an incumbent LEC were to charge one class of interconnecting carriers, such as CMRS providers, higher rates for interconnection than it charges other carriers, unless the different rates could be justified by differences in the costs incurred by the incumbent LEC.

862. State regulations permitting non-cost based discriminatory treatment are prohibited by the 1996 Act. This conclusion is consistent with both the letter and the spirit of the 1996 Act and our determination that the pricing for interconnection, unbundled elements, and transport and termination of traffic should not vary based on the identity or classification of the interconnector.[2060]

[2058] David L. Kaserman & John W. Mayo, Government & Business: *The Economics of Antitrust & Regulation* at 273-74 (1995) (*citing* George J. Stigler, *The Theory of Price* (3d ed. 1966)) (emphasis added).

[2059] Hal R. Varian, "Price Discrimination," in *Handbook of Industrial Organization*, vol.1, p. 598 (R. Schmalensee and R.D. Willig eds., 1989).

[2060] *See infra*, Section XI.A., discussing transport and termination rates.